

**CLASS 564, ORGANIC COMPOUNDS -- PART  
OF THE CLASS 532-570 SERIES**

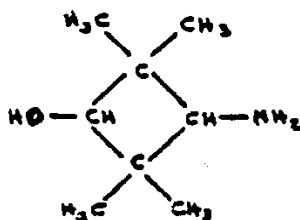
**SUBCLASSES**

**1** This subclass is indented under subclass 1. Compounds under Class 532, ... which contain nitrogen in a form other than as nitrogen in an inorganic ion of an addition salt, nitro, or nitroso.

(1) Note. This group of compounds includes for example, ureas, thioureas, amides, amidines, azines, hydrazones, carbodiimides, oximes, hydroxylamines, and amines, inter alia, as well as their inorganic acid salts.

(2) Note. This subclass is residual for alicyclic amines not specifically provided for below.

(3) Note. This subclass contains, for example:



(4) Note. If amino nitrogen is present, the compound may additionally contain nitro, nitroso, or nitrogen in an inorganic ion of an addition salt.

(5) Note. Component parts of an "adduct" will be considered to be attached to each other ionically, except if it is clear that the mode of attachment is nonionic.

**SEE OR SEARCH CLASS:**

588, Hazardous or Toxic Waste Destruction or Containment, subclasses 206 through 225 for the destruction of organic hazardous or toxic waste containing halogen, sulfur, oxygen, nitrogen, phosphorus, or metals.

**1.5** This subclass is indented under subclass 1. Compounds wherein urea, per se, of thiourea, per se, forms an adduct or inclusion compound with an organic compound.

(1) Note. by adduct or inclusion compound is meant a type of complex in which the urea or thiourea is bound with another suitable chemical without changing the chemical character of either the urea-thiourea or of the other chemical; the respective molecules will be unaltered in their chemical nature and the individual compounds may readily be constituted and isolated.

(2) Note. An example of a compound provided for herein is the adduct of urea and an alkane.

**2** This subclass is indented under subclass 1. Products wherein the amino nitrogen containing compound is mixed with a preserving agent whose sole function is to prevent physical or chemical change.

**3** This subclass is indented under subclass 2. Products wherein the compound stabilized or preserved contains the grouping below, wherein X is O or S. NN

**4** This subclass is indented under subclass 2. Products wherein the compound stabilized or preserved is a carboxamide containing the grouping RN

**5** This subclass is indented under subclass 2. Products wherein the compound being preserved contains a benzene ring.

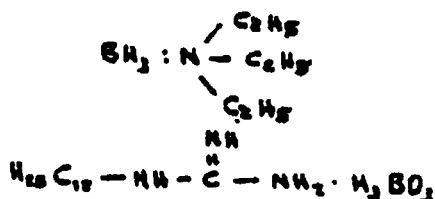
**6** This subclass is indented under subclass 5. Products wherein the preserving or stabilizing agent is inorganic.

**7** This subclass is indented under subclass 5. Products wherein the preserving or stabilizing agent contains sulfur or a phenolic group.

**8** This subclass is indented under subclass 1. Compounds which contain boron.

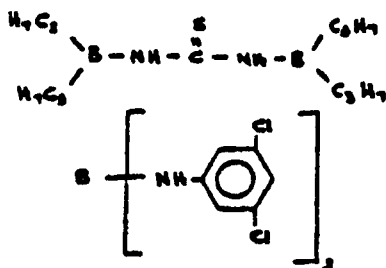
(1) Note. This subclass contains boron containing complexes, adducts, and salts.

- (2) Note. This subclass contains, for example:



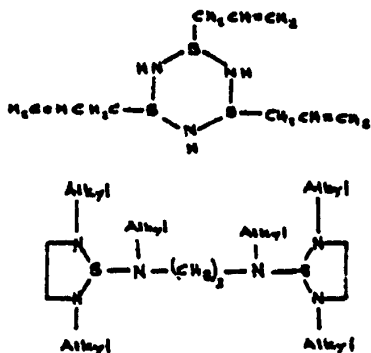
- 9 This subclass is indented under subclass 8. Compounds wherein the boron is directly attached to an amino nitrogen by nonionic bonding.

- (1) Note. This subclass contains, for example:



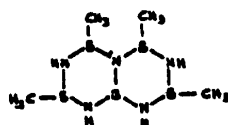
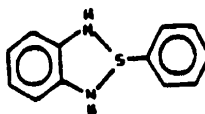
- 10 This subclass is indented under subclass 9. Compounds wherein the nonionically bonded boron and amino nitrogen are both members of the same ring.

- (1) Note. This subclass contains, for example:



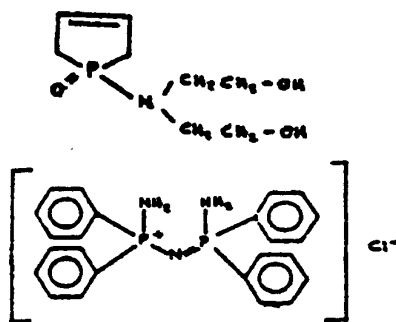
- 11 This subclass is indented under subclass 10. Compounds wherein the boron and nitrogen containing ring is part of a polycyclic ring system.

- (1) Note. This subclass contains, for example:



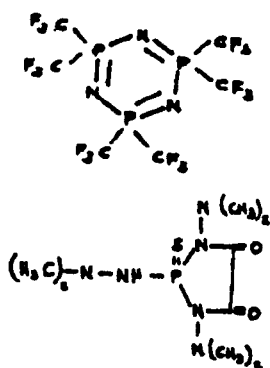
- 12 This subclass is indented under subclass 1. Compounds which contain phosphorus directly attached to an amino nitrogen by nonionic bonding.

- (1) Note. This subclass contains, for example:



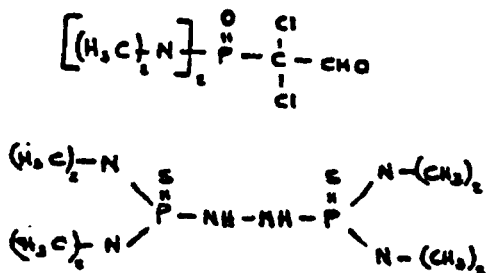
- 13 This subclass is indented under subclass 12. Compounds wherein the phosphorus and amino nitrogen are both members of the same ring.

- (1) Note. This subclass contains, for example:



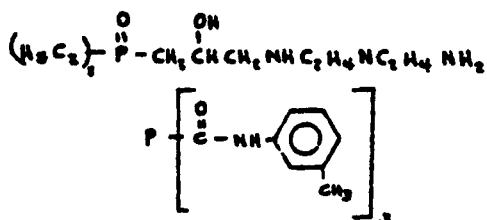
- 14 This subclass is indented under subclass 12. Compounds wherein at least two amino nitrogens and oxygen or sulfur are bonded to the same phosphorus.

(1) Note. This subclass contains, for example:



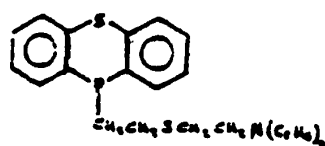
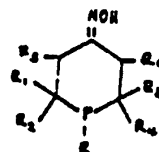
- 15 This subclass is indented under subclass 1. Compounds which contain phosphorus indirectly attached to amino nitrogen by nonionic bonding.

(1) Note. This subclass contains, for example:



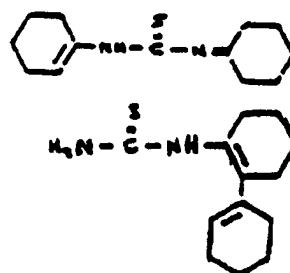
- 16 This subclass is indented under subclass 15. Compounds wherein the phosphorus is a member of a ring.

(1) Note. This subclass contains, for example:



- 17 This subclass is indented under subclass 1. Compounds which contain the grouping

(1) Note. This subclass contains, for example:

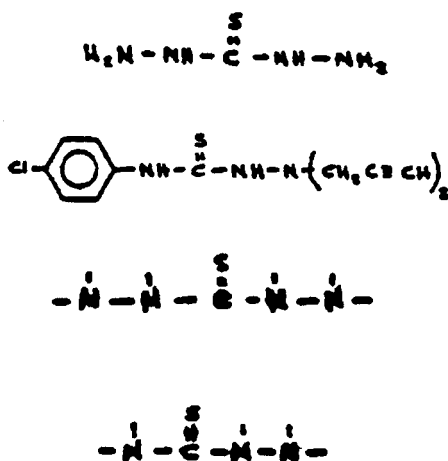


SEE OR SEARCH CLASS:

558, Organic Compounds, subclass 4 and 5 for isothioureas or pseudothioureas.

- 18 This subclass is indented under subclass 17. Compounds which contain the thiocarbazine radical wherein an amino nitrogen is bonded directly to each of the thiourea nitrogens, or the thiosemicarbazide radical wherein an amino nitrogen is bonded to one thiourea nitrogen -N-

(1) Note. This subclass contains, for example:



- 19 This subclass is indented under subclass 18. Compounds which contain the thiocarbazone radical (Figure 1) or the thiosemicarbazone radical (Fig.2).

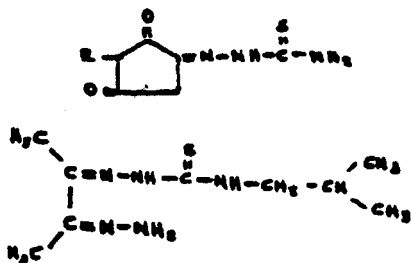


FIGURE 1



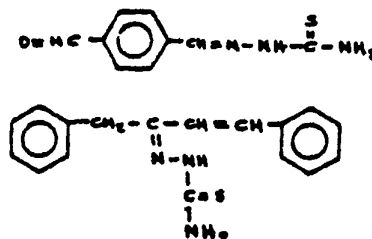
FIGURE 2

- (1) Note. This subclass contains, for example:



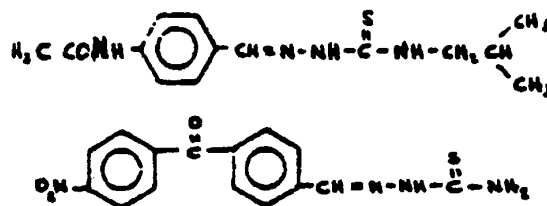
- 20 This subclass is indented under subclass 19. Compounds which contain a benzene ring.

- (1) Note. This subclass contains, for example:



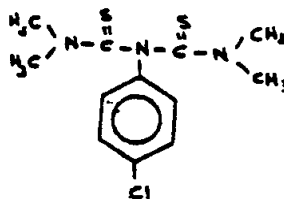
- 21 This subclass is indented under subclass 20. Compounds which contain nitrogen in addition to that of the thiocarbazone or thiosemicarbazone.

- (1) Note. This subclass contains, for example:



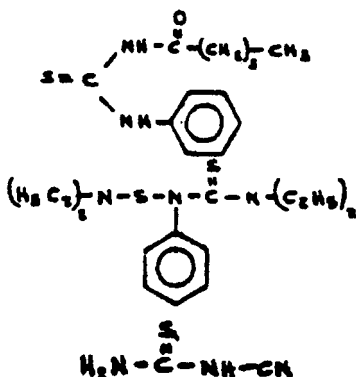
- 22 This subclass is indented under subclass 17. Compounds which contain the grouping in the figure below, wherein X may be oxygen or sulfur, i.e., mono- or dithiobiurets. --

- (1) Note. This subclass contains, for example:



- 23 This subclass is indented under subclass 17. Compounds wherein a thiourea nitrogen has carbonyl, sulfur, or cyano group directly attached by nonionic bonding.

- (1) Note. This subclass contains, for example:



- 24 This subclass is indented under subclass 17. Processes wherein carbon disulfide is utilized in preparing a thiourea.

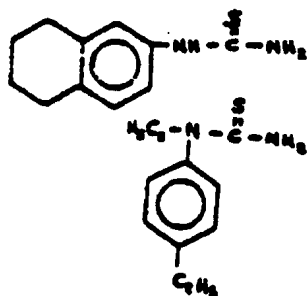
- (1) Note. This subclass contains, for example, the reaction of aniline and carbon disulfide to produce thiocarbanilide.

- 25 This subclass is indented under subclass 17. Processes wherein a cyano compound is utilized in preparing a thiourea.

- (1) Note. This subclass contains, for example, the production of thiourea by reaction of cyanamide with hydrogen sulfide.

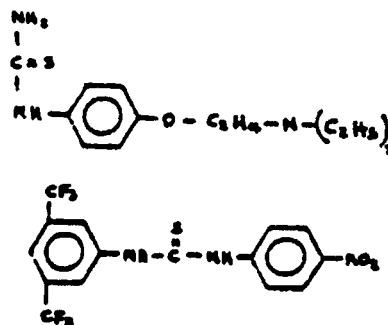
- 26 This subclass is indented under subclass 17. Compounds which contain a benzene ring.

- (1) Note. This subclass contains, for example:



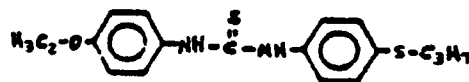
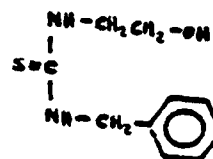
- 27 This subclass is indented under subclass 26. Compounds which contain nitrogen in addition to the thiourea nitrogen.

- (1) Note. This subclass contains, for example:



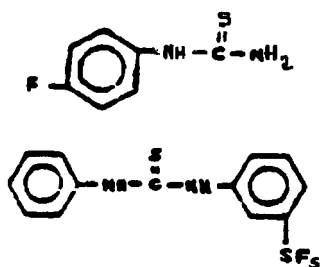
- 28 This subclass is indented under subclass 26. Compounds which contain a hydroxyl group bonded directly to a carbon, or an ether, wherein H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or a group IA or IIA light metal.

- (1) Note. This subclass contains, for example:



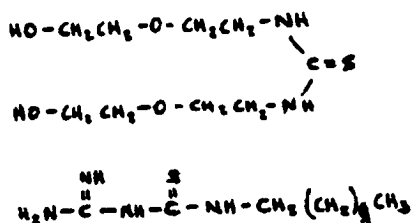
- 29 This subclass is indented under subclass 26. Compounds which contain halogen nonionically bonded.

- (1) Note. This subclass contains, for example:



- 30 This subclass is indented under subclass 17. Compounds which do not contain any ring.

(1) Note. This subclass contains, for example:



- 31 This subclass is indented under subclass 30. The compound which is thiourea, or its salts and processes of preparation not provided for above.

- 32 This subclass is indented under subclass 1. Compounds which have the grouping

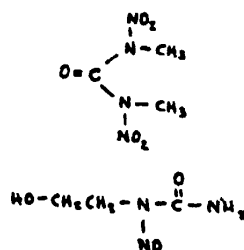
(1) Note. This subclass contains, for example, adducts of urea with inorganic compounds such as hydrogen peroxide or calcium nitrate.

SEE OR SEARCH THIS CLASS, SUBCLASS:

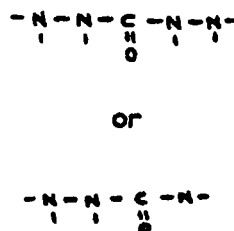
- 260, Chemistry of Carbon Compounds, subclass 96.5 for adducts of urea with organic compounds.  
558, Organic Compounds, subclass 8 for isoureas or pseudoureas.  
564, Organic Compounds, subclass 1.5 for adducts of urea with organic compounds.

- 33 This subclass is indented under subclass 32. Compounds which contain a nitro or nitroso group bonded directly to an amino nitrogen (i.e., nitramine or nitrosamine containing).

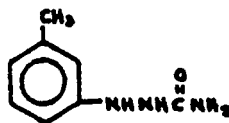
(1) Note. This subclass contains, for example:



- 34 This subclass is indented under subclass 32. Compounds which are carbazides or semicarbazides containing the grouping

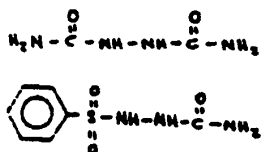


(1) Note. This subclass contains, for example:



- 35 This subclass is indented under subclass 34. Compounds wherein a carbonyl group or sulfur is attached directly to a carbazide or semicarbazide nitrogen by nonionic bonding.

(1) Note. This subclass contains, for example:



- 36 This subclass is indented under subclass 34. Compounds which contain the carbazone radical (Fig. 1) or the semicarbazone radical (Fig. 2).

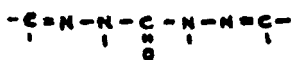


FIGURE 1

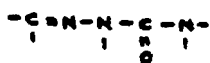
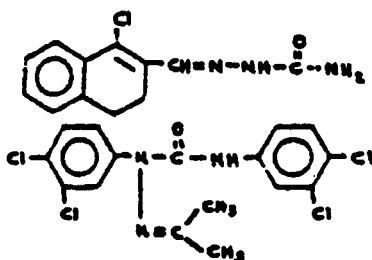


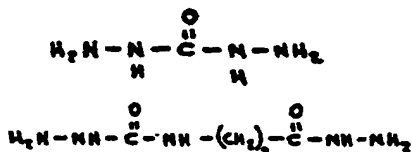
FIGURE 2

- (1) Note. This subclass contains, for example:



- 37 This subclass is indented under subclass 34. Compounds which do not contain any ring.

- (1) Note. This subclass contains, for example:



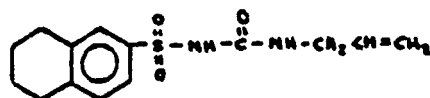
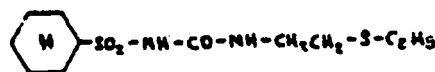
- 38 This subclass is indented under subclass 32. Compounds which are biurets and contain the grouping --

- (1) Note. This subclass contains, for example:



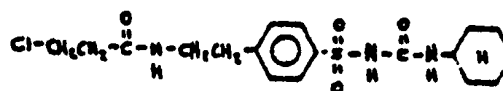
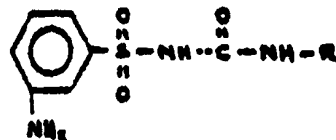
- 39 This subclass is indented under subclass 32. Compounds which contain sulfur attached directly to urea nitrogen by nonionic bonding.

- (1) Note. This subclass contains, for example:



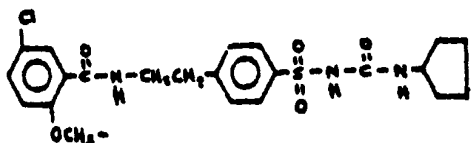
- 40 This subclass is indented under subclass 39. Compounds wherein the sulfur is part of a group which contains additional nitrogen.

- (1) Note. This subclass contains, for example:



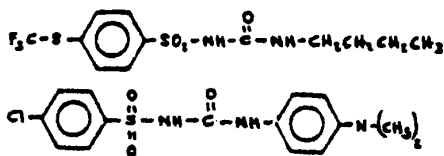
- 41 This subclass is indented under subclass 40. Compounds wherein the additional nitrogen is the nitrogen of a benzamido group.

- (1) Note. This subclass contains, for example:



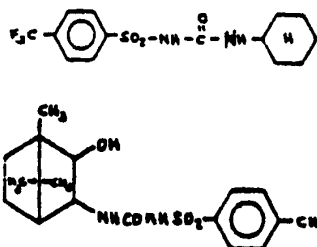
- 42 This subclass is indented under subclass 39. Compounds wherein the sulfur is part of a substituent which is monocyclic and aromatic.

(1) Note. This subclass contains, for example:



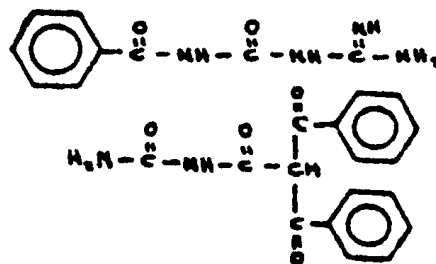
- 43 This subclass is indented under subclass 42. Compounds wherein an alicyclic ring is bonded directly to a urea nitrogen.

(1) Note. This subclass contains, for example:



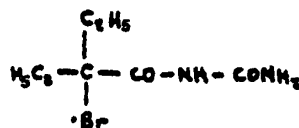
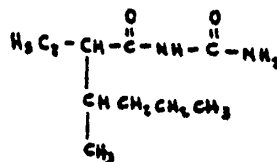
- 44 This subclass is indented under subclass 32. Compounds in which a urea nitrogen has been amidated by a carboxylic acid.

(1) Note. This subclass contains, for example:



- 45 This subclass is indented under subclass 44. Compounds wherein the carboxylic acid contains no ring.

(1) Note. This subclass contains, for example:



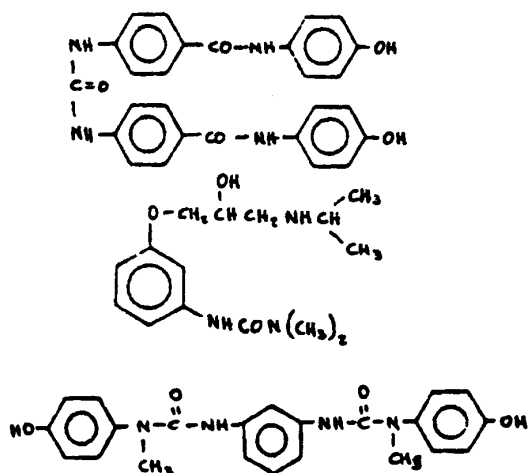
SEE OR SEARCH CLASS:

554, Organic Compounds, subclass 56 for compounds where the carboxylic acid is a higher fatty acid.

- 46 This subclass is indented under subclass 45. Compounds wherein the carboxylic acid contains a double or triple bond.

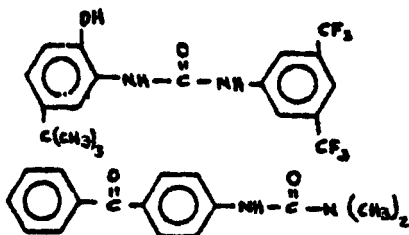
(1) Note. This subclass contains, for example:





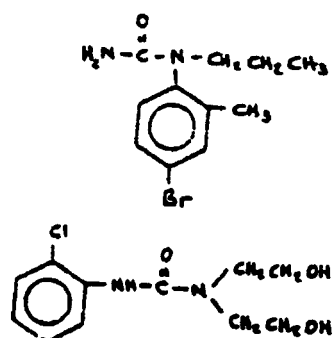
- 52 This subclass is indented under subclass 48. Compounds wherein the benzene ring is part of a substituent which contains oxygen.

(1) Note. This subclass contains, for example:



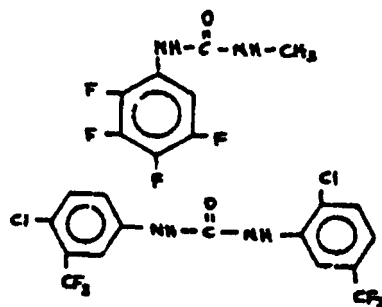
- 53 This subclass is indented under subclass 48. Compounds wherein the benzene ring is part of a substituent which contains halogen bonded directly to carbon.

(1) Note. This subclass contains, for example:



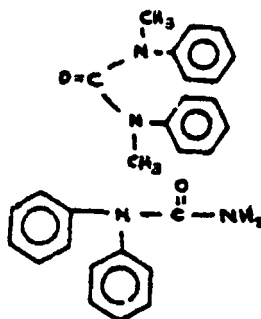
- 54 This subclass is indented under subclass 53. Compounds wherein the halogen is fluorine.

(1) Note. This subclass contains, for example:



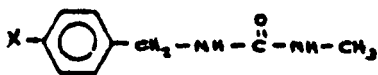
- 55 This subclass is indented under subclass 48. Compounds wherein more than one benzene ring is bonded directly to the same urea nitrogen or to different urea nitrogen.

(1) Note. This subclass contains, for example:



- 56 This subclass is indented under subclass 47. Compounds wherein an aralkyl group is bonded directly to a urea nitrogen.

(1) Note. This subclass contains, for example:



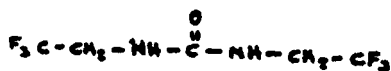
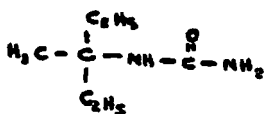
- 57 This subclass is indented under subclass 32. Compounds which contain an alicyclic group.

(1) Note. This subclass contains, for example:



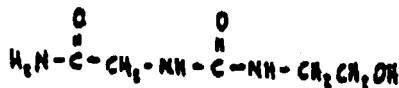
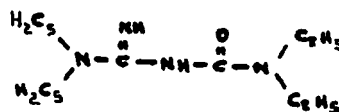
- 58 This subclass is indented under subclass 32. Compounds which contain an alkyl or substituted alkyl group bonded directly to a urea nitrogen.

(1) Note. This subclass contains, for example:



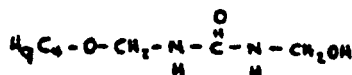
- 59 This subclass is indented under subclass 58. Compounds wherein the alkyl group contains an additional nitrogen.

(1) Note. This subclass contains, for example:



- 60 This subclass is indented under subclass 58. Compounds wherein the alkyl group contains oxygen as a substituent.

(1) Note. This subclass contains, for example:



- 61 This subclass is indented under subclass 58. Processes for the preparation, purification, separation, or recovery of compounds classified therein.

- 62 This subclass is indented under subclass 61. Processes wherein one of the starting materials contain a double or triple bond between two carbons.

- 63 This subclass is indented under subclass 32. The compound which is urea or salts thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

32, for complexes of urea with inorganic compounds.

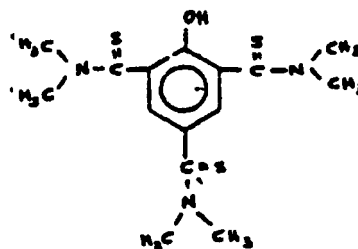
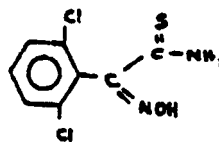
- 64 This subclass is indented under subclass 63. Processes which utilize a cyano containing compound, for example, calcium cyanamide in the preparation of urea.

- 65 This subclass is indented under subclass 63. Processes in which urea is prepared by reacting ammonia with carbon monoxide or carbon oxysulfide.

- 66 This subclass is indented under subclass 63. Processes in which urea is prepared directly from ammonium carbamate.

SEE OR SEARCH THIS CLASS, SUBCLASS:

70, for the preparation of urea from ammonia and carbon dioxide which includes the decomposition of by-product ammonium carbamate.



- 67 This subclass is indented under subclass 63. Processes wherein urea is prepared by the reaction of ammonia with carbon dioxide.

- 68 This subclass is indented under subclass 67. Processes which include the prevention of corrosion of the reactor.

- 69 This subclass is indented under subclass 67. Processes which include the step of synthesizing ammonia.

- 70 This subclass is indented under subclass 67. Processes wherein by-product ammonium carbamate is decomposed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

66, for the preparation of urea directly from ammonium carbamate.

- 71 This subclass is indented under subclass 70. Processes which utilize indirect heat exchange.

- 72 This subclass is indented under subclass 70. Processes wherein the decomposition of ammonium carbamate is performed in plural stages.

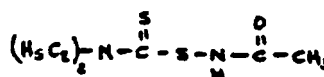
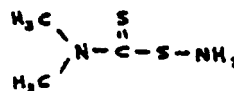
- 73 This subclass is indented under subclass 63. Processes directed to the purification, separation, or recovery of urea.

- 74 This subclass is indented under subclass 1. Compounds which are thiocarboxamides containing the grouping N

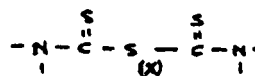
(1) Note. This subclass contains, for example:

- 75 This subclass is indented under subclass 74. Compounds which contain the grouping -S- not provided for above.

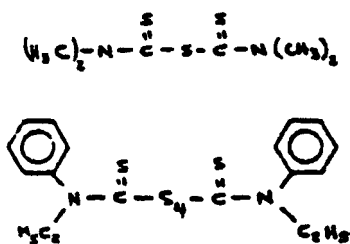
(1) Note. This subclass contains, for example:



- 76 This subclass is indented under subclass 75. Compounds which are thiuram sulfides containing the grouping below wherein X is a positive integer.

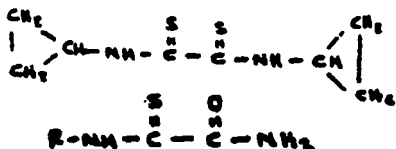


(1) Note. This subclass contains, for example:



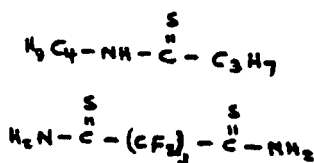
77 This subclass is indented under subclass 74. Compounds which are thioamides containing the grouping -- wherein X may be oxygen or sulfur.

(1) Note. This subclass contains, for example:

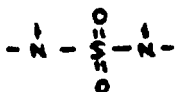


**78** This subclass is indented under subclass 74.  
Compounds which do not contain a ring.

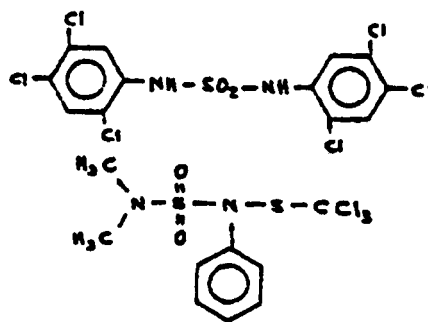
(1) Note. This subclass contains, for example:



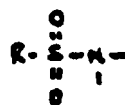
**79** This subclass is indented under subclass 1. Compounds which are diamides of sulfuric acid (i.e., sulfamides) and contain the grouping



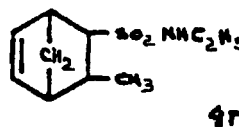
(1) Note. This subclass contains, for example:



**80** This subclass is indented under subclass 1. Compounds which are sulfonamides and contain the grouping below wherein R-SO<sub>2</sub> - is the residue of a sulfonic acid and N is the residue of an amino nitrogen containing compound.

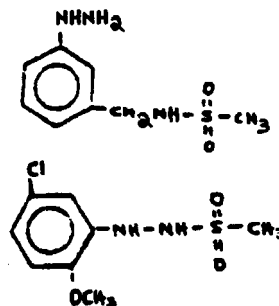


(1) Note. This subclass contains, for example:



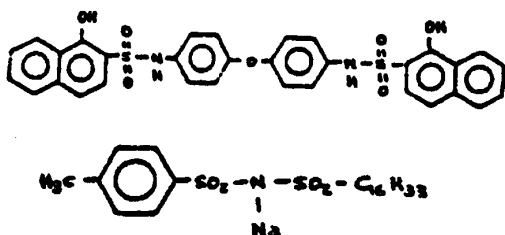
**81** This subclass is indented under subclass 80.  
Compounds which contain a hydrazine group.

(1) Note. This subclass contains, for example:



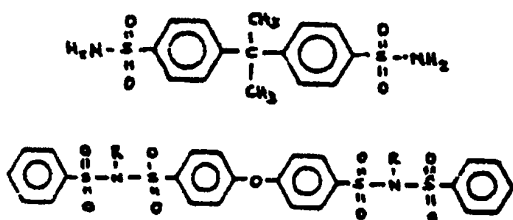
- 82 This subclass is indented under subclass 80. Compounds which contain more than one sulfonamide group or contain plural sulfonyls bonded directly to the same nitrogen.

(1) Note. This subclass contains, for example:



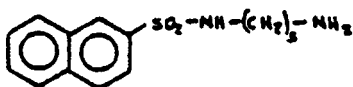
- 83 This subclass is indented under subclass 82. Compounds wherein the sulfonyls of two sulfonamide groups contain no sulfonamide nitrogen between them.

(1) Note. This subclass contains, for example:



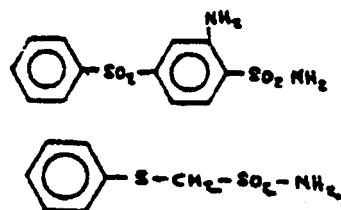
- 84 This subclass is indented under subclass 80. Compounds wherein the sulfonic acid residue is aromatic (i.e., benzene ring containing).

(1) Note. This subclass contains, for example:



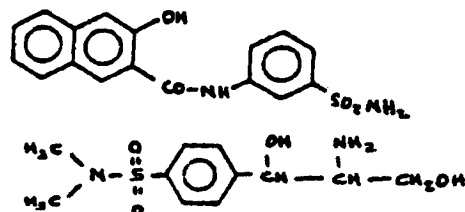
- 85 This subclass is indented under subclass 84. Compounds wherein the aromatic sulfonic acid residue contains sulfur.

(1) Note. This subclass contains, for example:



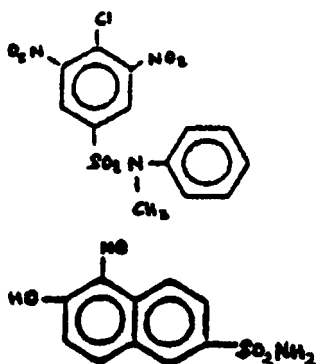
- 86 This subclass is indented under subclass 84. Compounds wherein the residue of the aromatic sulfonic acid contains nitrogen.

(1) Note. This subclass contains, for example:



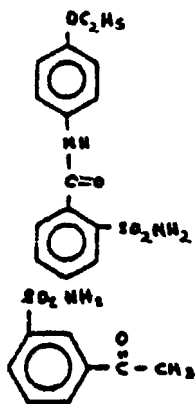
- 87 This subclass is indented under subclass 86. Compounds wherein the residue of the aromatic sulfonic acid contains a nitro or nitroso group bonded directly to a carbon atom.

(1) Note. This subclass contains, for example:



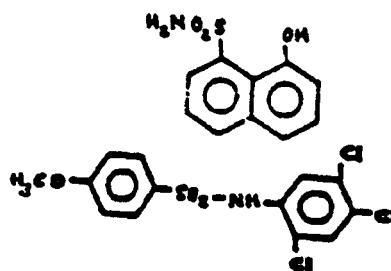
- 88 This subclass is indented under subclass 84. Compounds wherein the residue of the aromatic sulfonic acid contains a carbonyl group.

(1) Note. This subclass contains, for example:



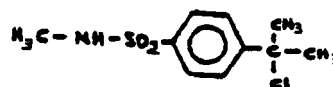
- 89 This subclass is indented under subclass 84. Compounds wherein the residue of the aromatic sulfonic acid contains a hydroxyl group bonded directly to carbon or an ether wherein the H of the OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



- 90 This subclass is indented under subclass 84. Compounds wherein the residue of the aromatic sulfonic acid is monocyclic.

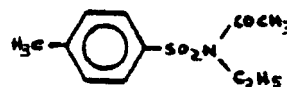
(1) Note. This subclass contains, for example:



- 91 This subclass is indented under subclass 90. Compounds wherein the amino nitrogen compound residue contains a carbonyl, cyano, nitro, nitroso, halogen, or sulfur attached directly to the sulfonamido nitrogen or to an amino nitrogen by nonionic bonding.

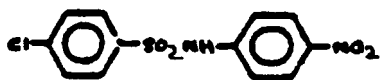
(1) Note. For purposes of this classification compounds having the structure  $\text{RSO}_2\text{-N-halogen}$  are considered to be acid halides of analogs of hydroxamic acids and are classified in Class 562, subclass 837.

(2) Note. This subclass contains, for example:



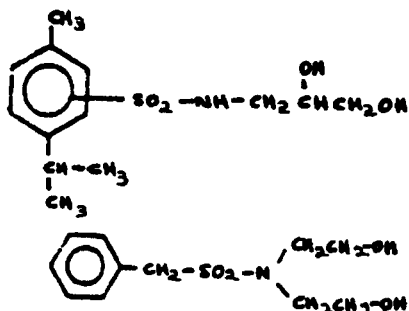
- 92 This subclass is indented under subclass 90. Compounds wherein the amino nitrogen compound residue contains a benzene ring.

- (1) Note. This subclass contains, for example:



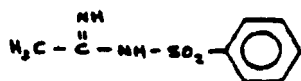
- 93 This subclass is indented under subclass 90. Compounds wherein the amino nitrogen compound residue contains a hydroxyl bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

- (1) Note. This subclass contains, for example:



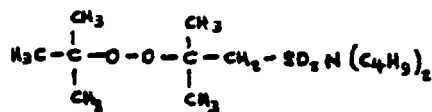
- 94 This subclass is indented under subclass 90. Compounds wherein the amino nitrogen compound residue contains an additional nitrogen.

- (1) Note. This subclass contains, for example:



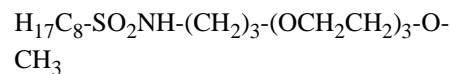
- 95 This subclass is indented under subclass 80. Compounds wherein the sulfonic acid residue contains no ring.

- (1) Note. This subclass contains, for example:



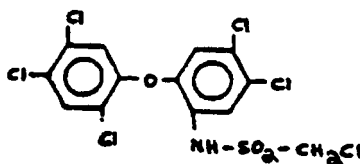
- 96 This subclass is indented under subclass 95. Compounds wherein the sulfonic acid residue contains halogen nonionically bonded.

- (1) Note. This subclass contains, for example:



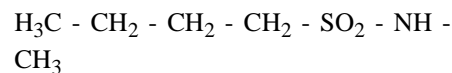
- 97 This subclass is indented under subclass 96. Compounds wherein the amino nitrogen compound residue contains a benzene ring.

- (1) Note. This subclass contains, for example:



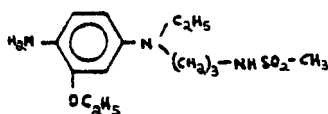
- 98 This subclass is indented under subclass 95. Compounds wherein the sulfonic acid residue consists of unsubstituted alkyl.

- (1) Note. This subclass contains, for example:



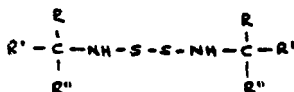
- 99 This subclass is indented under subclass 98. Compounds wherein the amine nitrogen compound residue contains a benzene ring.

- (1) Note. This subclass contains, for example:



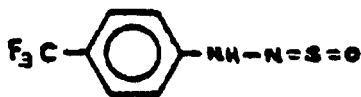
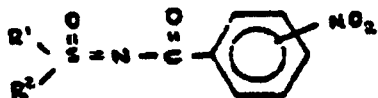
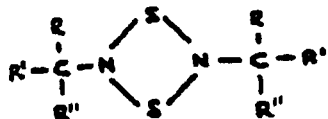
- 100 This subclass is indented under subclass 1. Compounds which are thiosulfenamides containing the grouping -- S - S -

(1) Note. This subclass contains, for example:



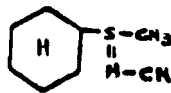
- 101 This subclass is indented under subclass 1. Compounds which contain two amino nitrogens nonionically bonded directly to the same sulfur or which contain sulfur doubly bonded to oxygen and directly attached to an amino nitrogen by nonionic bonding, as for example, sulfinamides.

(1) Note. This subclass contains, for example:



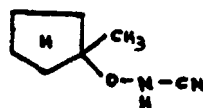
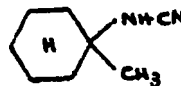
- 102 This subclass is indented under subclass 1. Compounds which contain sulfur bonded directly to an amino nitrogen by nonionic bonding, as for example, sulfenamides.

(1) Note. This subclass contains, for example:



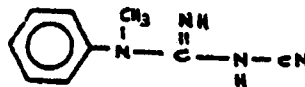
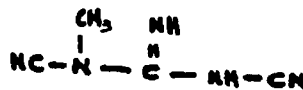
- 103 This subclass is indented under subclass 1. Compounds which are cyanamides wherein a cyano group is bonded directly to an amino nitrogen.

(1) Note. This subclass contains, for example:



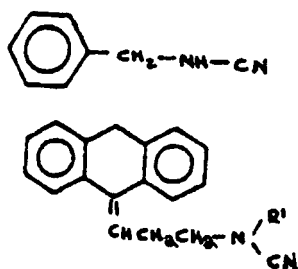
- 104 This subclass is indented under subclass 103. Compounds wherein the cyano group is bonded directly to a nitrogen of a guanidine group.

(1) Note. This subclass contains, for example:



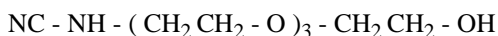
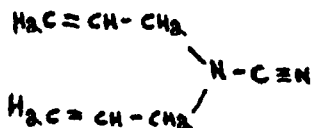
- 105 This subclass is indented under subclass 103. Compounds which contain a benzene ring.

(1) Note. This subclass contains, for example:



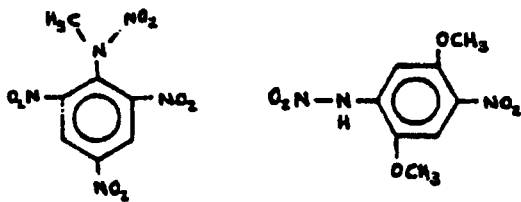
- 106 This subclass is indented under subclass 103. Compounds which contains no ring.

(1) Note. This subclass contains, for example:



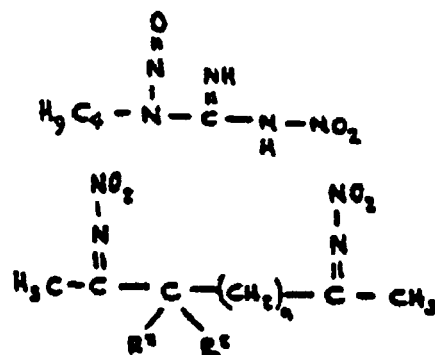
- 107 This subclass is indented under subclass 1. Compounds which are nitramines wherein a nitro group is attached directly to an amino nitrogen.

(1) Note. This subclass contains, for example:



- 108 This subclass is indented under subclass 107. Compounds which contain an amino nitrogen doubly bonded to carbon.

(1) Note. This subclass contains, for example:

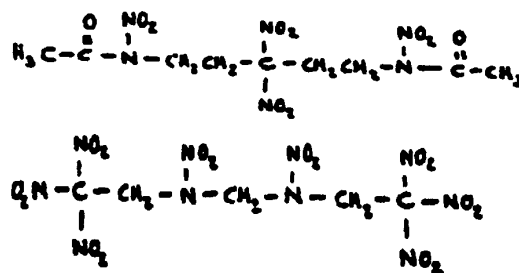


- 109 This subclass is indented under subclass 107. Compounds which do not contain a ring.

(1) Note. This subclass contains, for example:

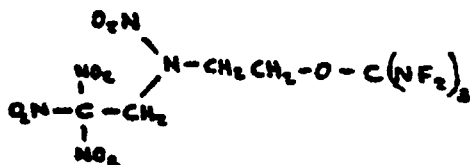
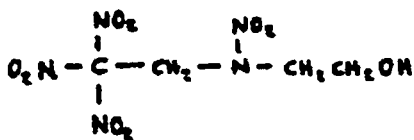
- 110 This subclass is indented under subclass 109. Compounds which contain a nitro group bonded directly to carbon.

(1) Note. This subclass contains, for example:



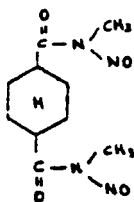
- 111 This subclass is indented under subclass 110. Compounds which contain hydroxy bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



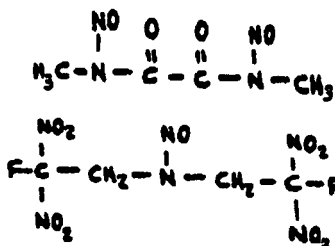
- 112 This subclass is indented under subclass 1. Compounds which are nitrosamines, wherein a nitroso group is attached directly to an amino nitrogen.

(1) Note. This subclass contains, for example:



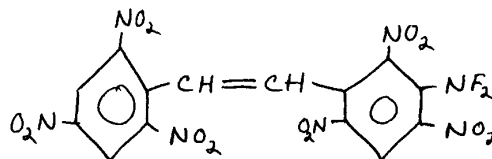
- 113 This subclass is indented under subclass 112. Compounds which do not contain a ring.

(1) Note. This subclass contains, for example:



- 114 This subclass is indented under subclass 1. Compounds which are haloamines, wherein halogen is attached directly to an amino nitrogen by nonionic bonding.

(1) Note. This subclass contains, for example:

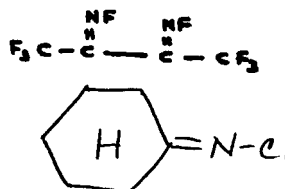


SEE OR SEARCH CLASS:

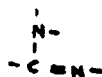
562, Organic Compounds, subclasses 800+ for compounds wherein halogen is nonionically bonded to the nitrogen of a carboxamide.

- 115 This subclass is indented under subclass 114. Compounds which contain nitrogen doubly bonded to carbon.

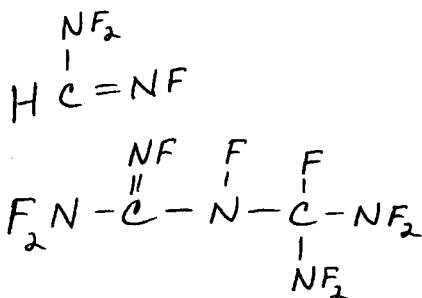
(1) Note. This subclass contains, for example:



- 116 This subclass is indented under subclass 115. Compounds which contain the amidine group

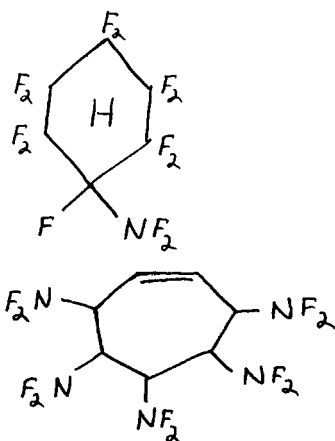


(1) Note. This subclass contains, for example:



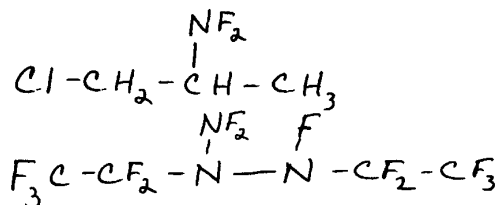
- 117 This subclass is indented under subclass 114. Compounds which contain an alicyclic group.

(1) Note. This subclass contains, for example:



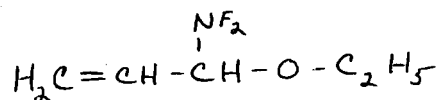
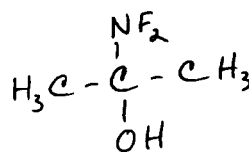
- 118 This subclass is indented under subclass 114. Compounds which do not contain a ring.

(1) Note. This subclass contains, for example:



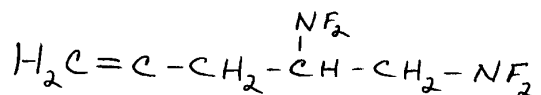
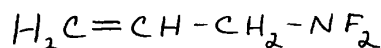
- 119 This subclass is indented under subclass 118. Compounds which contain a hydroxyl bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



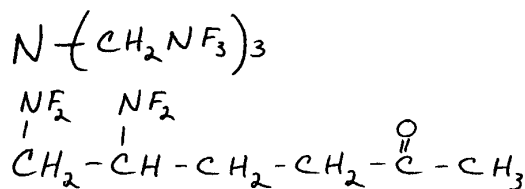
- 120 This subclass is indented under subclass 118. Compounds which contain a carbon to carbon double or triple bond.

(1) Note. This subclass contains, for example:



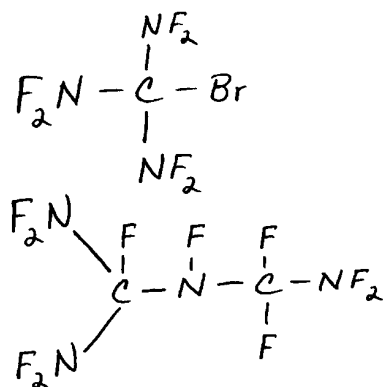
- 121 This subclass is indented under subclass 118. Compounds which contain plural difluoramino groups.

(1) Note. This subclass contains, for example:

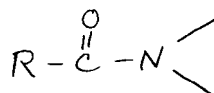


- 122 This subclass is indented under subclass 121. Compounds wherein the plural difluoramino groups are bonded directly to the same carbon.

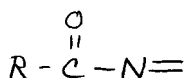
(1) Note. This subclass contains, for example:



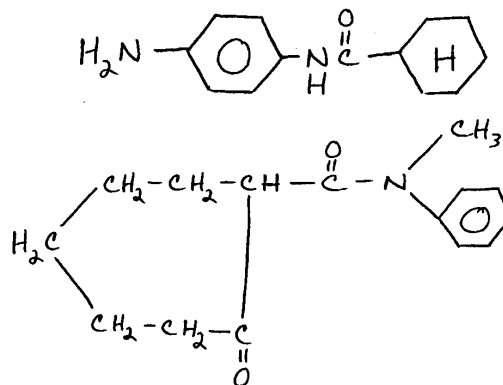
- 123 This subclass is indented under subclass 1. Compounds which are carboxamides and contain one of the groupings



or



(1) Note. This subclass contains, for example:



#### SEE OR SEARCH CLASS:

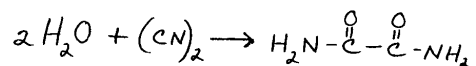
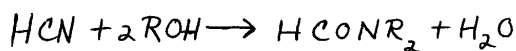
- 260, Chemistry of Carbon Compounds, subclass 401, 402.5, 404 and 404.5 for amides of higher fatty acids.
- 530, Chemistry: Natural Resins or Derivatives; Peptides or Reaction Products Thereof, subclasses 200+ for amides of natural resin acids wherein the acids are the mixture of acids naturally occurring in natural resins or for a natural resin acid amide wherein the amide does not have a known chemical structure.
- 554, Organic Compounds, subclasses 35+ for amides of higher fatty acids.

- 124 This subclass is indented under subclass 123. Processes wherein a carboxamide is prepared directly from a cyano containing compound.

(1) Note. Processes which involve catalytic hydration or hydrolysis of nitriles combined with other chemical reactions, such as for example, reduction of a nitro group to an amine are placed in this subclass. Where the only reaction is catalytic hydration, see subclasses 126+; and where the only reaction is acid hydrolysis, see subclass 129, even if purification or recovery steps are included.

- 125 This subclass is indented under subclass 124. Processes which utilize HCN or cyanogen in the preparation of a carboxamide.

(1) Note. This subclass includes, for example:



- 126** This subclass is indented under subclass 124. Processes wherein the sole chemical reaction for amide formation is the hydrolysis of a nitrile in water in the presence of a catalyst.

- (1) Note. For processes including simultaneous hydrolysis and other reactions, such as for example, amination, alkylation, or reduction, see subclass 124.
- (2) Note. This subclass includes the combination of hydrolysis followed by purification or recovery.

- 127** This subclass is indented under subclass 126. Processes which utilize a copper containing catalyst.

- 128** This subclass is indented under subclass 126. Processes wherein acrylonitriles are catalytically hydrated.

- 129** This subclass is indented under subclass 124. Processes wherein the sole chemical reaction for amide formation is the acid hydrolysis of a nitrile.

- (1) Note. This subclass includes the combination of hydrolysis followed by purification or recovery.

SEE OR SEARCH THIS CLASS, SUBCLASS:

124, for processes including simultaneous acid hydrolysis combined with other reactions.

- 130** This subclass is indented under subclass 124. Processes wherein a carboxamide is prepared from a nitrile which contains no ring.

- 131** This subclass is indented under subclass 130. Processes wherein the nitrile contains a double or triple bond between two carbons.

- 132** This subclass is indented under subclass 123. Processes wherein a carboxamide is prepared by a reaction utilizing carbon monoxide or carbon dioxide.

- (1) Note. This subclass contains for example, the reaction of an aliphatic alcohol with ammonia and carbon monoxide to prepare a formamide, or the reaction of an amine with carbon dioxide and hydrogen to prepare a formamide.

- 133** This subclass is indented under subclass 123. Processes wherein a carboxamide is formed by reaction of a carboxylic acid, salt, ester, acid halide, or anhydride with ammonia or an amino nitrogen containing compound.

- 134** This subclass is indented under subclass 133. Processes wherein a carboxylic acid ester is utilized.

- 135** This subclass is indented under subclass 134. Processes wherein the carboxylic acid of the ester does not contain a ring.

- 136** This subclass is indented under subclass 135. Processes wherein the carboxylic acid of the ester contains additional oxygen.

- 137** This subclass is indented under subclass 135. Processes wherein the carboxylic acid of the ester is a lower fatty acid.

- 138** This subclass is indented under subclass 133. Processes wherein a carboxylic acid is utilized.

- 139** This subclass is indented under subclass 138. Processes wherein the carboxylic acid contains a benzene ring.

- 140** This subclass is indented under subclass 139. Processes wherein hydroxy naphthoic acid is utilized.

- 141** This subclass is indented under subclass 138. Processes wherein a lower fatty acid is utilized.

- 142** This subclass is indented under subclass 133. Processes wherein a carboxylic acid halide is utilized.

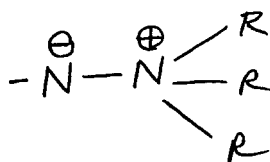
**143** This subclass is indented under subclass 142. Processes wherein the carboxylic acid halide does not contain a ring.

**144** This subclass is indented under subclass 133. Processes wherein a carboxylic acid anhydride which does not have a ring is utilized.

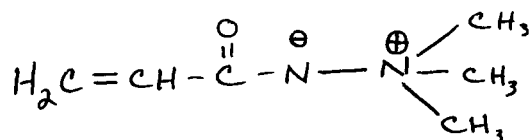
**145** This subclass is indented under subclass 123. Processes wherein a carboxamide is prepared by utilizing a mixture of sulfur or a sulfur containing compound with ammonia or by utilizing an ammonium polysulfide, as for example, by the Willgerdt reaction.

**146** This subclass is indented under subclass 123. Processes wherein a nitro group is introduced into a carboxamide.

**147** This subclass is indented under subclass 123. Compounds which are aminimines and contain the grouping

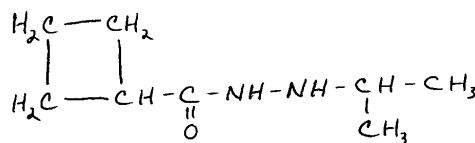
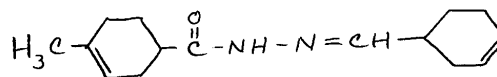


(1) Note. This subclass contains, for example:



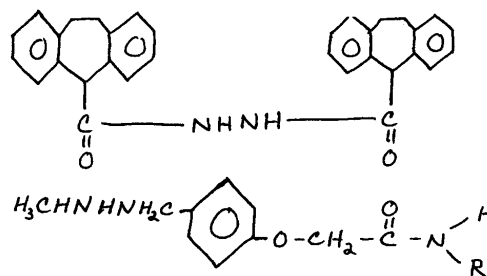
**148** This subclass is indented under subclass 123. Compounds which contain a hydrazine group.

(1) Note. This subclass contains, for example:



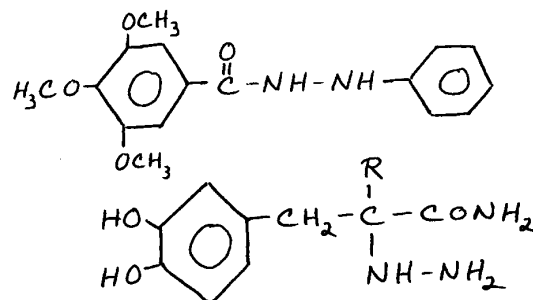
**149** This subclass is indented under subclass 148. Compounds wherein the carboxylic acid residue contains a benzene ring.

(1) Note. This subclass contains, for example:



**150** This subclass is indented under subclass 149. Compounds wherein the carboxylic acid residue contains hydroxy bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

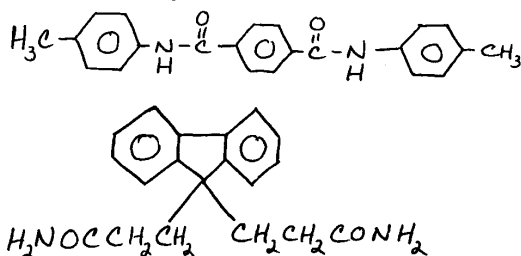
(1) Note. This subclass contains, for example:





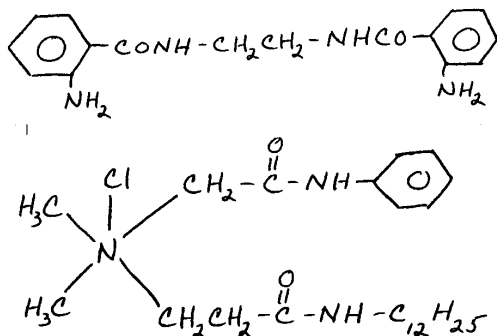
- 156** This subclass is indented under subclass 155. Compounds wherein the carbonyls of two carboxamides have a benzene ring between them and no carboxamide nitrogen between them.

(1) Note. This subclass contains, for example:



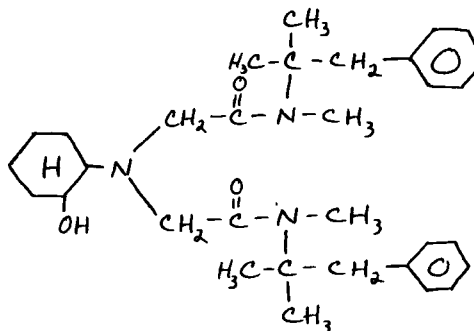
- 157** This subclass is indented under subclass 155. Compounds which contain a noncarboxamide amino nitrogen.

(1) Note. This subclass contains, for example:



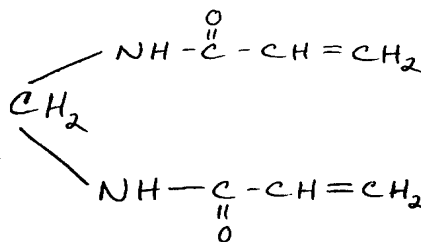
- 158** This subclass is indented under subclass 155. Compounds which contain a hydroxyl bonded directly to carbon, or ether, wherein the H of -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



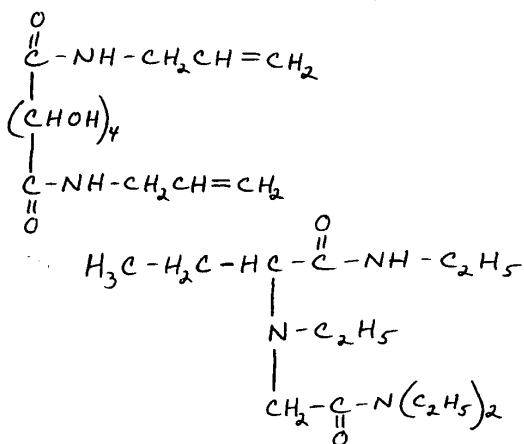
- 159** This subclass is indented under subclass 152. Compounds which contain no ring.

(1) Note. This subclass contains, for example:



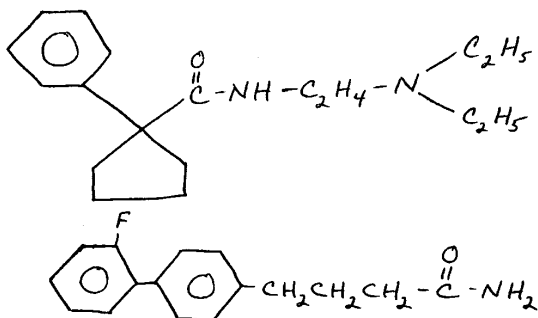
- 160** This subclass is indented under subclass 159. Compounds wherein the carbonyls of two carboxamides have no carboxamide nitrogen between them.

(1) Note. This subclass contains, for example:



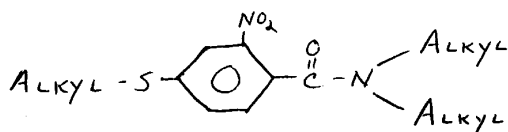
- 161** This subclass is indented under subclass 123. Compounds wherein the residue of the carboxylic acid contains a benzene ring.

(1) Note. This subclass contains, for example:



- 162** This subclass is indented under subclass 161. Compounds wherein the residue of the carboxylic acid contains sulfur.

(1) Note. This subclass contains, for example:

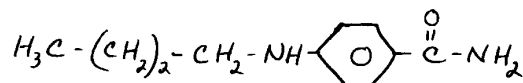


SEE OR SEARCH THIS CLASS, SUBCLASS:

80+, 100, 101, and 102, for carboxamides which also contain sulfur bonded directly to amino nitrogen.

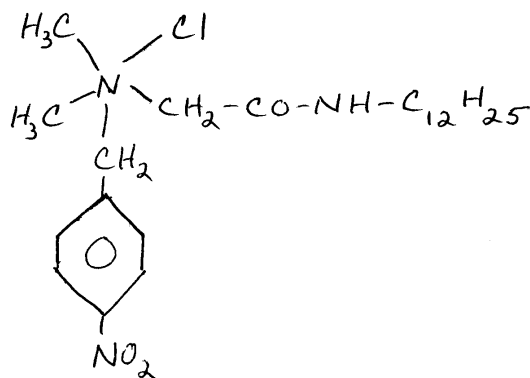
- 163** This subclass is indented under subclass 161. Compounds wherein the carboxylic acid residue contains nitrogen.

(1) Note. This subclass contains, for example:



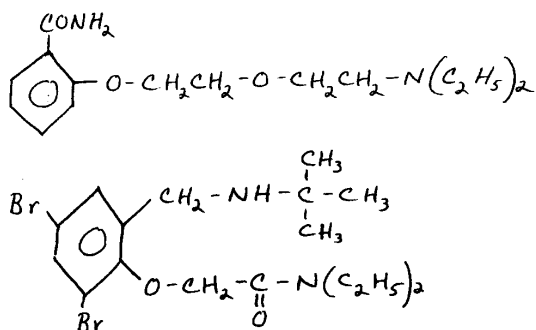
- 164** This subclass is indented under subclass 163. Compounds wherein the carboxylic acid residue contains an amine nitrogen indirectly attached to a ring through a carbon or through an acyclic chain.

(1) Note. This subclass contains, for example:



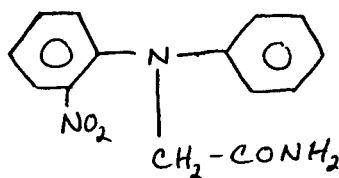
- 165** This subclass is indented under subclass 164. Compounds wherein the carboxylic acid residue contains a hydroxyl bonded directly to carbon or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



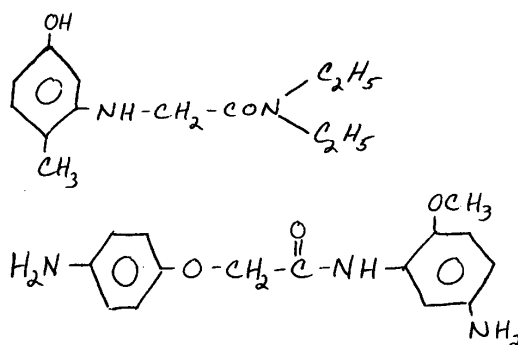
- 166** This subclass is indented under subclass 163. Compounds wherein the residue of the carboxylic acid contains a nitro group.

(1) Note. This subclass contains, for example:



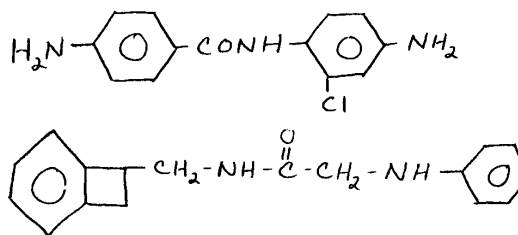
- 167** This subclass is indented under subclass 163. Compounds wherein the carboxylic acid residue contains a hydroxyl bonded directly to carbon or an ether, wherein the H of the  $-\text{OH}$  may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



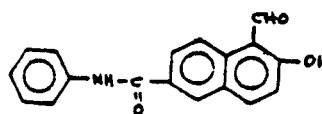
- 168** This subclass is indented under subclass 163. Compounds wherein the amino nitrogen containing residue contains a ring.

(1) Note. This subclass contains, for example:



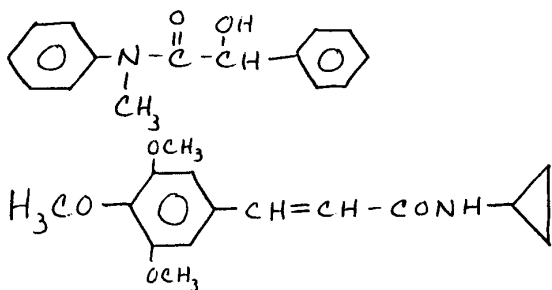
- 169** This subclass is indented under subclass 161. Compounds wherein the carboxylic acid residue contains an aldehyde or ketone group.

(1) Note. This subclass contains, for example:



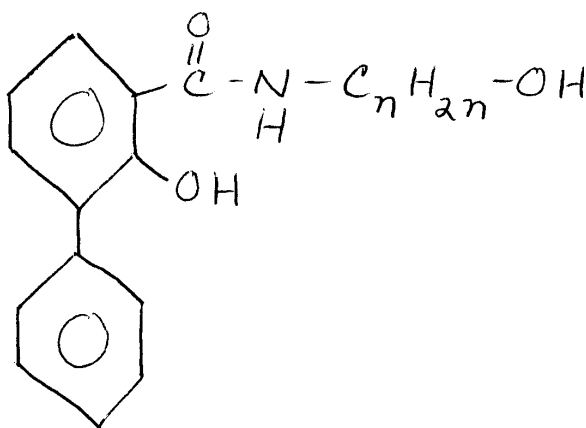
- 170** This subclass is indented under subclass 161. Compounds wherein the carboxylic acid residue contains a hydroxyl bonded directly to carbon or an ether, wherein the H of the  $-\text{OH}$  may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

- (1) Note. This subclass contains, for example:



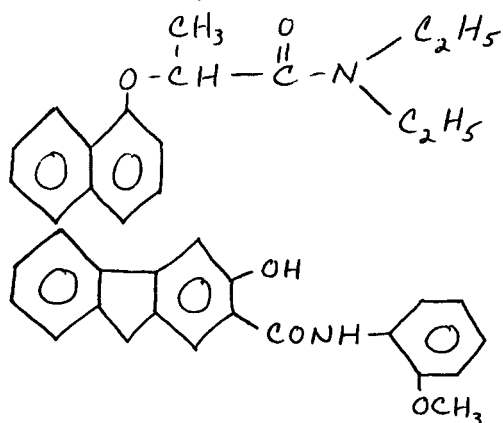
- 171** This subclass is indented under subclass 170. Compounds wherein the carboxylic acid residue contains more than one ring.

- (1) Note. This subclass contains, for example:



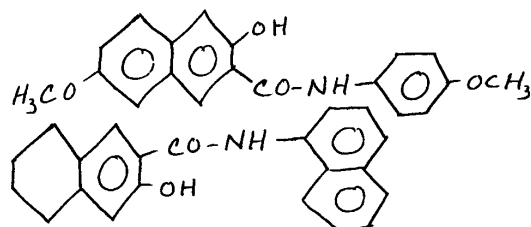
- 172** This subclass is indented under subclass 171. Compounds wherein the carboxylic acid residue contains a polycyclic ring system.

- (1) Note. This subclass contains, for example:



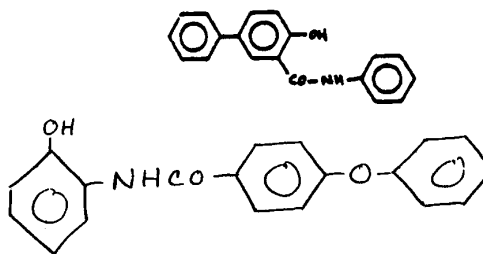
- 173** This subclass is indented under subclass 172. Compounds wherein the carboxylic acid residue is an ortho-hydroxy naphthoic acid or a partially hydrogenated form thereof.

- (1) Note. This subclass contains, for example:



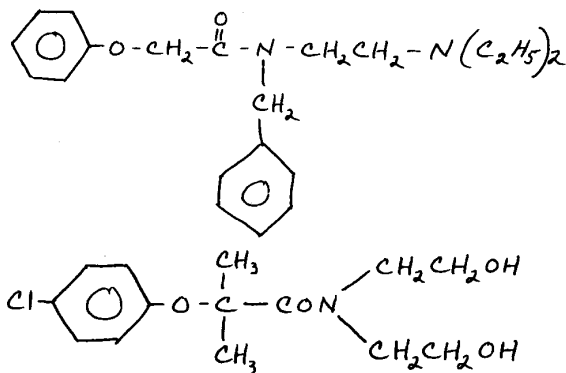
- 174** This subclass is indented under subclass 171. Compounds wherein the amino nitrogen residue contains a ring.

- (1) Note. This subclass contains, for example:



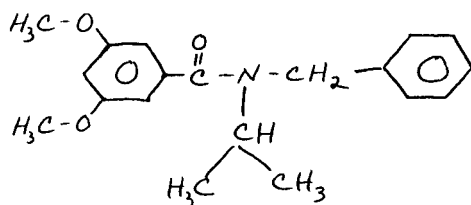
- 175** This subclass is indented under subclass 170. Compounds wherein the carboxylic acid residue contains oxygen which is directly bonded to a benzene ring and is part of an acyclic chain which also contains the acid carbonyl group.

(1) Note. This subclass contains, for example:



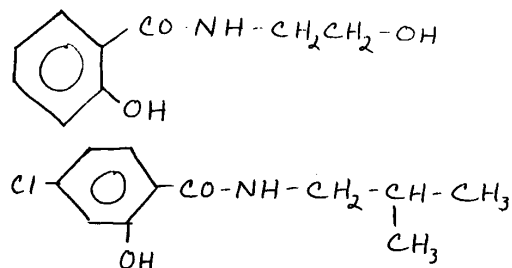
- 176** This subclass is indented under subclass 170. Compounds wherein the carboxylic acid residue contains a benzene ring bonded directly to the acid carbonyl group.

(1) Note. This subclass contains, for example:



- 177** This subclass is indented under subclass 176. Compounds wherein the carboxylic acid residue contains a hydroxy group or its Group IA or IIA light metal or ammonium derivative bonded directly to a benzene ring.

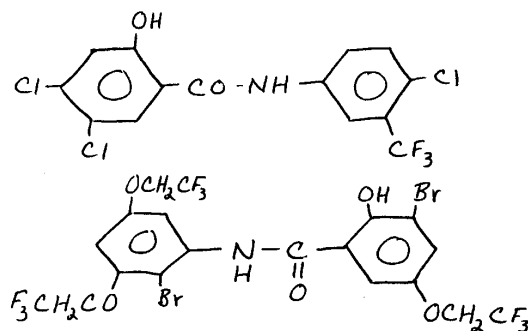
(1) Note. This subclass contains, for example:



- 178** This subclass is indented under subclass 177. Processes wherein the compounds are prepared directly by halogenation.

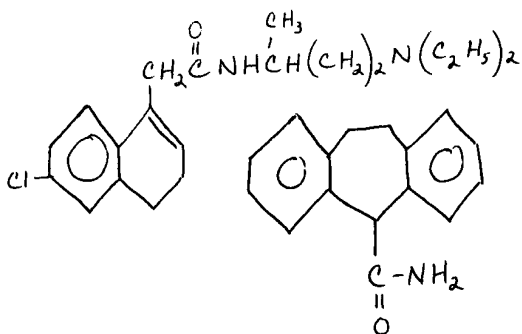
- 179** This subclass is indented under subclass 177. Compounds wherein the amino nitrogen containing residue has a benzene ring.

(1) Note. This subclass contains, for example:



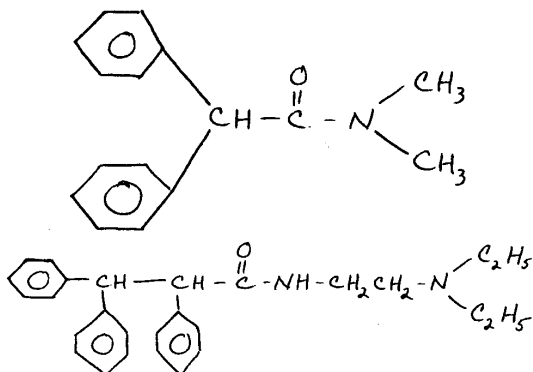
- 180** This subclass is indented under subclass 161. Compounds wherein the carboxylic acid residue contains a polycyclic ring system.

(1) Note. This subclass contains, for example:



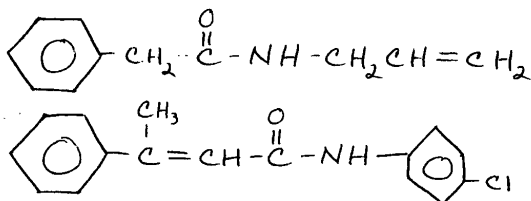
- 181** This subclass is indented under subclass 161. Compounds wherein the carboxylic acid residue contains two rings bonded directly to the same carbon.

(1) Note. This subclass contains, for example:



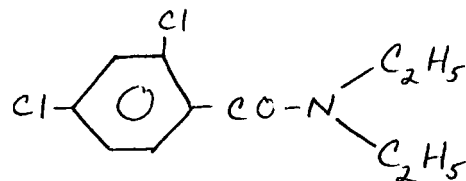
- 182** This subclass is indented under subclass 161. Compounds wherein the carboxylic acid residue contains only one ring.

(1) Note. This subclass contains, for example:



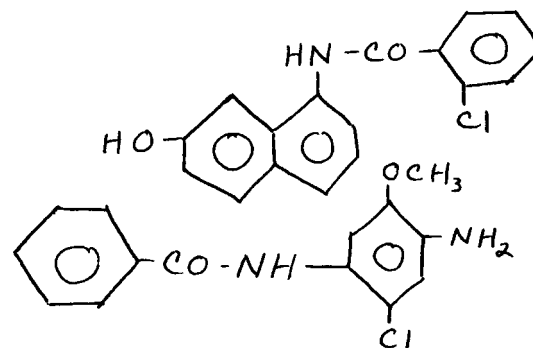
- 183** This subclass is indented under subclass 182. Compounds wherein the carboxylic acid residue contains a benzene ring bonded directly to the acid carbonyl.

(1) Note. This subclass contains, for example:



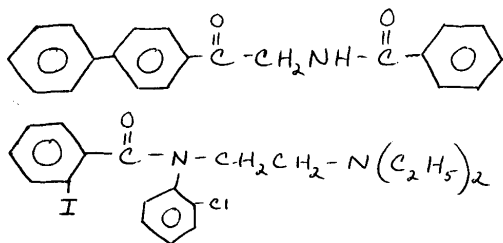
- 184** This subclass is indented under subclass 183. Compounds wherein the amino nitrogen containing residue contains a benzene ring.

(1) Note. This subclass contains, for example:



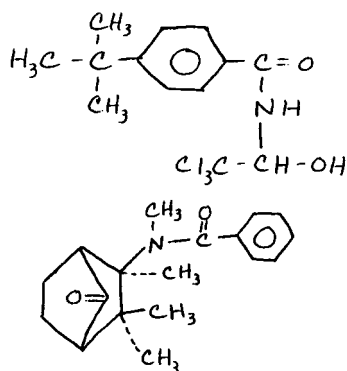
- 185** This subclass is indented under subclass 184. Compounds wherein the amino nitrogen containing residue contains a ring or a polycyclic ring system which is attached indirectly to the carboxamido nitrogen or to an additional amino nitrogen in the amino nitrogen containing residue by acyclic nonionic bonding.

(1) Note. This subclass contains, for example:



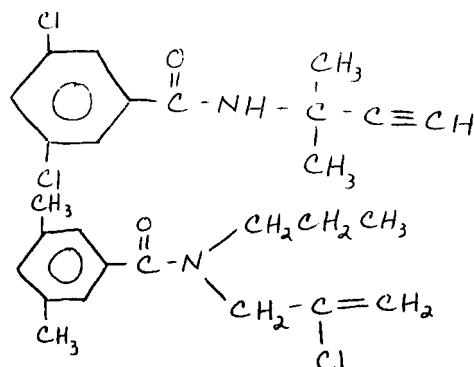
- 186** This subclass is indented under subclass 183. Compounds wherein the amino nitrogen containing residue contains oxygen.

(1) Note. This subclass contains, for example:



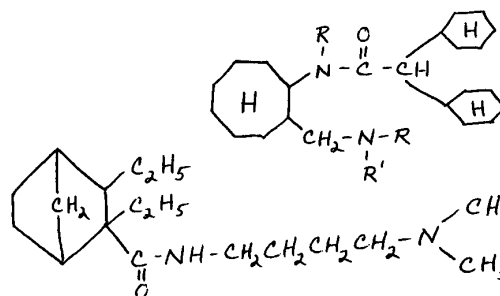
- 187** This subclass is indented under subclass 183. Compounds wherein the amino nitrogen containing residue contains a double or triple bond between two carbons.

(1) Note. This subclass contains, for example:



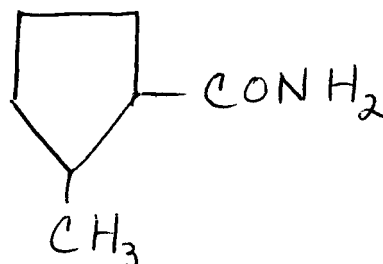
- 188** This subclass is indented under subclass 123. Compounds wherein the carboxylic acid residue contains more than one alicyclic ring.

(1) Note. This subclass contains, for example:



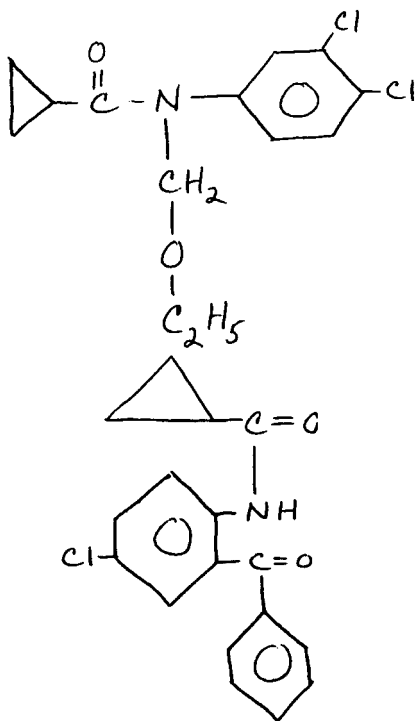
- 189** This subclass is indented under subclass 123. Compounds wherein the carboxylic acid residue contains a five-membered ring.

(1) Note. This subclass contains, for example:



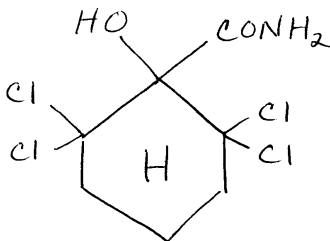
- 190** This subclass is indented under subclass 123. Compounds wherein the carboxylic acid residue contains a three-membered ring.

- (1) Note. This subclass contains, for example:



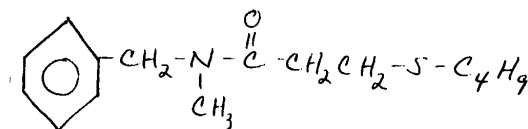
- 191** This subclass is indented under subclass 123. Compounds wherein the carboxylic acid residue contains an alicyclic ring and an atom other than carbon, hydrogen, or oxygen.

- (1) Note. This subclass contains, for example:



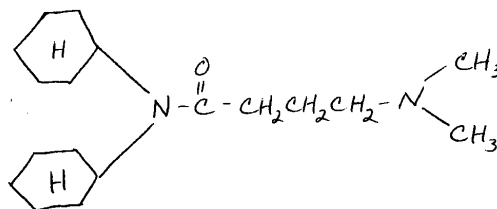
- 192** This subclass is indented under subclass 123. Compounds wherein the carboxylic acid residue does not contain a ring.

- (1) Note. This subclass contains, for example:



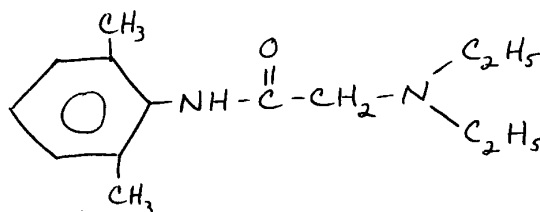
- 193** This subclass is indented under subclass 192. Compounds wherein the carboxylic acid residue contains nitrogen.

- (1) Note. This subclass contains, for example:



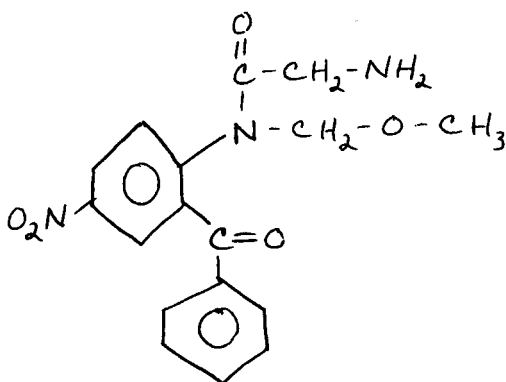
- 194** This subclass is indented under subclass 193. Compounds wherein the amino nitrogen containing residue contains a benzene ring.

- (1) Note. This subclass contains, for example:



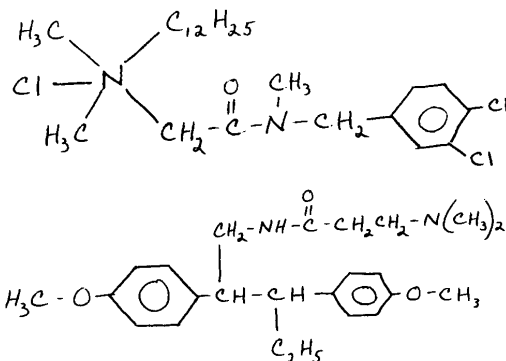
- 195** This subclass is indented under subclass 194. Compounds wherein the amino nitrogen containing residue contains two rings bonded directly to the same carbon.

- (1) Note. This subclass contains, for example:



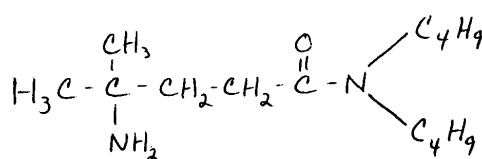
- 196** This subclass is indented under subclass 194. Compounds wherein the amino nitrogen containing residue contains a ring or a polycyclic ring system which is attached indirectly to the carboxamido nitrogen or to an additional amino nitrogen in the amino nitrogen containing residue by acyclic nonionic bonding.

(1) Note. This subclass contains, for example:



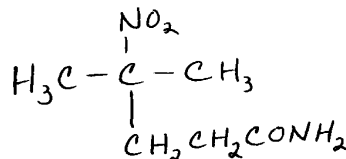
- 197** This subclass is indented under subclass 193. Compounds wherein the amino nitrogen containing residue does not contain a ring.

(1) Note. This subclass contains, for example:



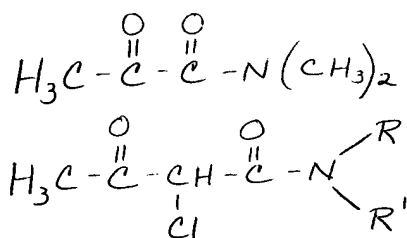
- 198** This subclass is indented under subclass 197. Compounds wherein the amino nitrogen containing residue is unsubstituted.

(1) Note. This subclass contains, for example:



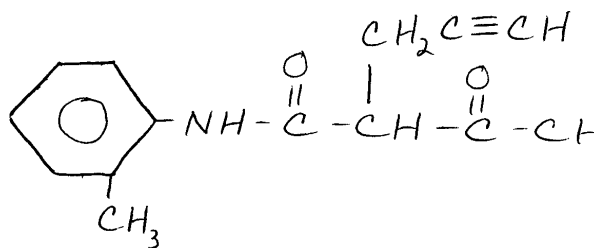
- 199** This subclass is indented under subclass 192. Compounds wherein the carboxylic acid residue contains an aldehyde or keto group.

(1) Note. This subclass contains, for example:



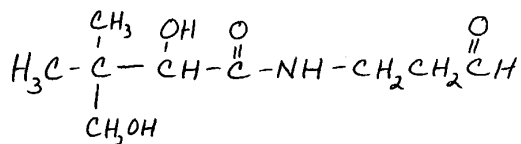
- 200** This subclass is indented under subclass 199. Compounds wherein the amino nitrogen containing residue contains a benzene ring.

(1) Note. This subclass contains, for example:



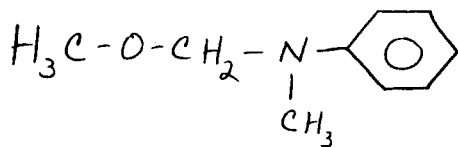
- 201** This subclass is indented under subclass 192. Compounds wherein the carboxylic acid residue contains a hydroxyl bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



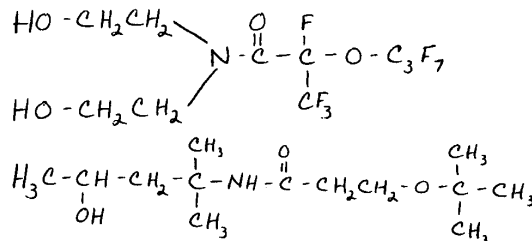
- 202** This subclass is indented under subclass 201. Compounds wherein the amino nitrogen containing residue contains a benzene ring.

(1) Note. This subclass contains, for example:



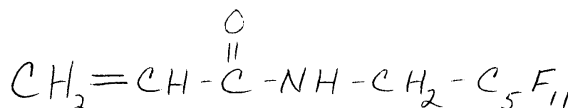
- 203** This subclass is indented under subclass 201. Compounds wherein the amino nitrogen containing residue does not have a ring and contains a hydroxyl bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



- 204** This subclass is indented under subclass 192. Compounds wherein the carboxylic acid residue contains a double or triple bond between two carbons.

(1) Note. This subclass contains, for example:

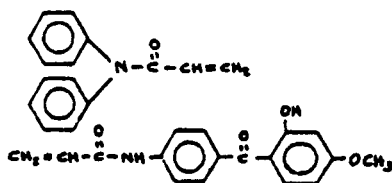


- 205** This subclass is indented under subclass 204. Processes wherein unsaturation is introduced into the carboxylic acid residue of a carboxamide, as for example, by pyrolyzing an alkoxy or acetoxy alkanolic acid amide to split off the alkoxy or acetoxy groups, respectively.

- 206** This subclass is indented under subclass 204. Processes directed to the purification, separation, or recovery of unsaturated carboxylic acid amides.

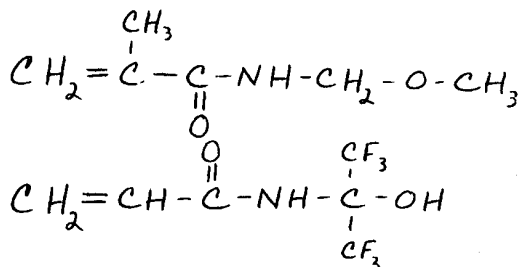
- 207** This subclass is indented under subclass 204. Compounds wherein the amino nitrogen containing residue contains a benzene ring.

(1) Note. This subclass contains, for example:



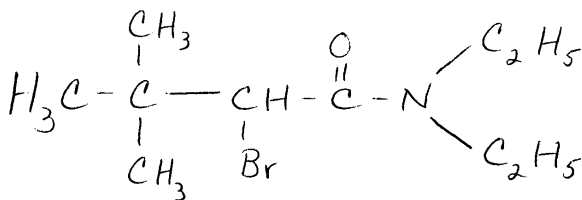
- 208 This subclass is indented under subclass 204. Compounds wherein the amino nitrogen containing residue does not have a ring and contains a hydroxyl bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



- 209 This subclass is indented under subclass 192. Compounds wherein the carboxylic acid residue contains halogen bonded directly to carbon.

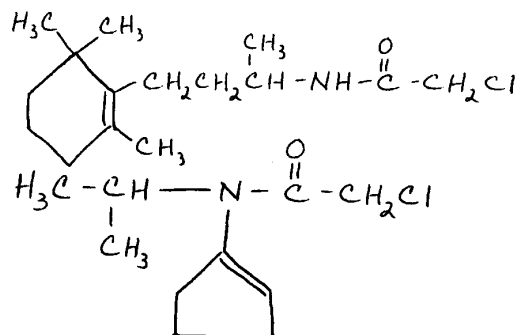
(1) Note. This subclass contains, for example:



- 210 This subclass is indented under subclass 209. Compounds wherein the amino nitrogen containing residue contains a ring.

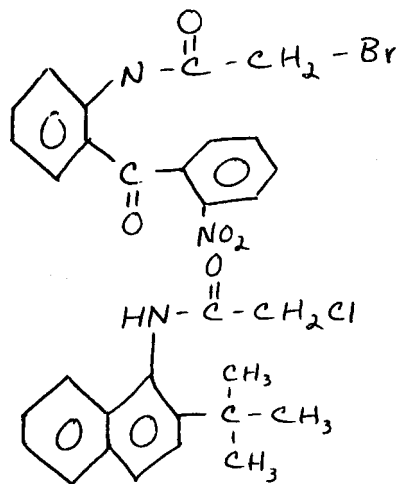
(1) Note. This subclass contains, for example:

(1)



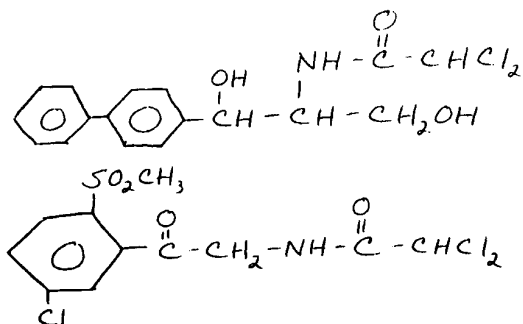
- 211 This subclass is indented under subclass 210. Compounds wherein the amino nitrogen containing residue contains a benzene ring.

(1) Note. This subclass contains, for example:



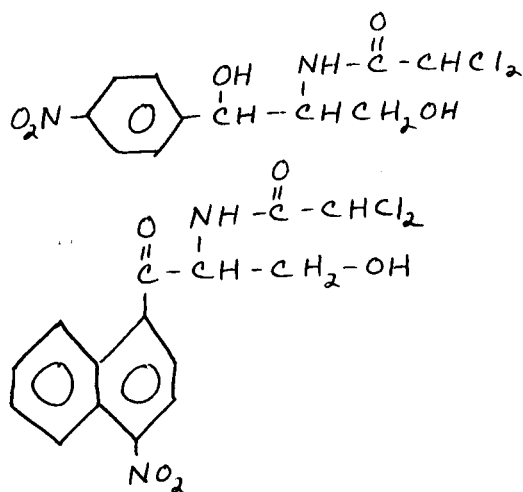
- 212 This subclass is indented under subclass 211. Compounds wherein the amino nitrogen containing residue contains a ring or a polycyclic ring system which is attached indirectly to the carboxamido nitrogen or to an additional amino nitrogen in the amino nitrogen containing residue by acyclic nonionic bonding.

- (1) Note. This subclass contains, for example:



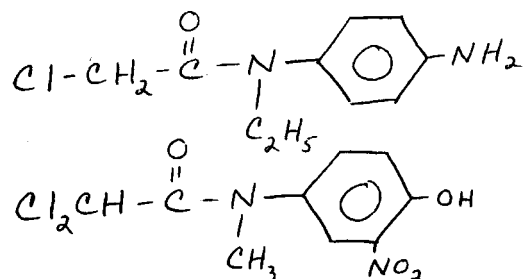
- 213** This subclass is indented under subclass 212. Compounds wherein the amino nitrogen containing residue contains a nitro group and an ether, or contains a nitro group and a hydroxyl, which hydroxyl is bonded directly to carbon and wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium or a Group IA or IIA light metal.

- (1) Note. This subclass contains, for example:



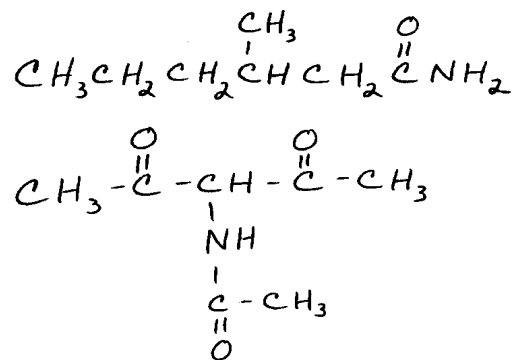
- 214** This subclass is indented under subclass 211. Compounds wherein the amino nitrogen containing residue contains only one ring.

- (1) Note. This subclass contains, for example:



- 215** This subclass is indented under subclass 192. Compounds wherein the carboxylic acid residue is from a lower fatty acid.

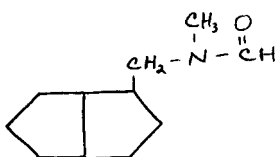
- (1) Note. This subclass contains, for example:



- 216** This subclass is indented under subclass 215. Processes directed to the purification, separation, or recovery of lower fatty acid amides.

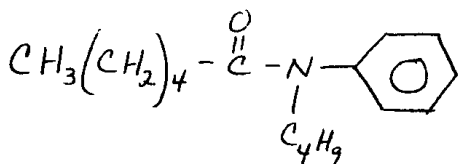
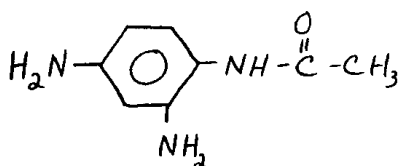
- 217** This subclass is indented under subclass 215. Compounds wherein the amino nitrogen containing residue contains a ring.

- (1) Note. This subclass contains, for example:



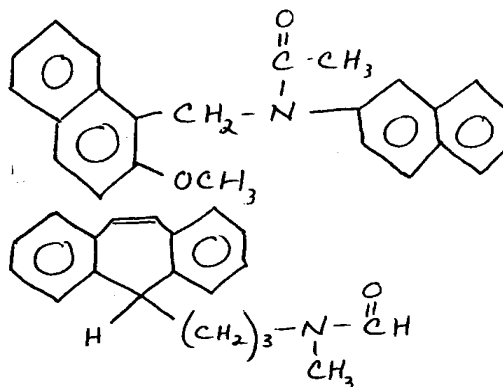
- 218** This subclass is indented under subclass 217. Compounds wherein the amino nitrogen containing residue contains a benzene ring.

(1) Note. This subclass contains, for example:



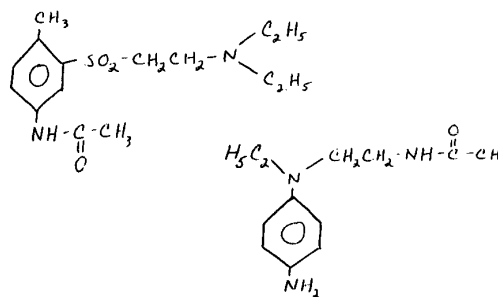
- 219** This subclass is indented under subclass 218. Compounds wherein the amino nitrogen containing residue contains a ring or a polycyclic ring system which is attached indirectly to the carboxamido nitrogen or to an additional amino nitrogen in the amino nitrogen containing residue by acyclic nonionic bonding.

(1) Note. This subclass contains, for example:



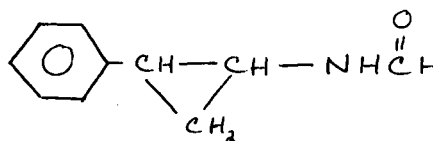
- 220** This subclass is indented under subclass 219. Compounds wherein the amino nitrogen containing residue contains an additional amino nitrogen.

(1) Note. This subclass contains, for example:



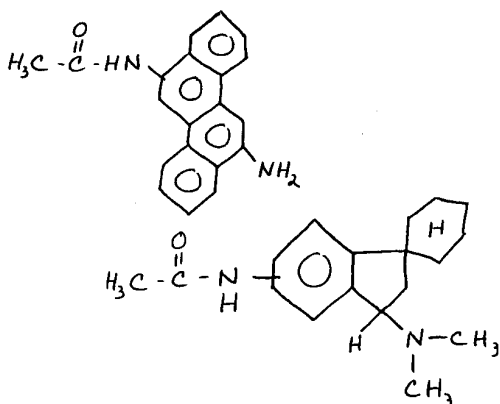
- 221** This subclass is indented under subclass 218. Compounds wherein the amino nitrogen containing residue contains more than one ring.

(1) Note. This subclass contains, for example:



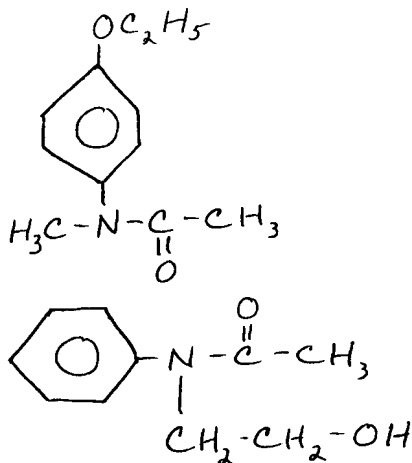
- 222** This subclass is indented under subclass 221. Compounds wherein the amino nitrogen containing residue contains a polycyclo ring system.

(1) Note. This subclass contains, for example:



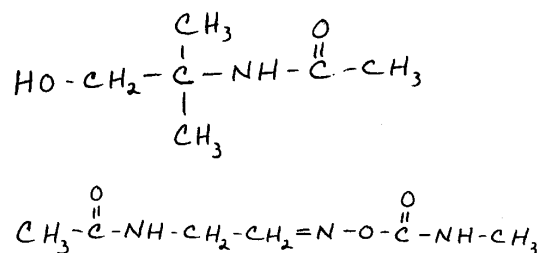
- 223** This subclass is indented under subclass 218. Compounds wherein the amino nitrogen containing residue contains a hydroxyl bonded directly to carbon, or an ether, where H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



- 224** This subclass is indented under subclass 215. Compounds wherein the amino nitrogen residue contains a hydroxyl bonded directly to carbon, or an ether or an additional nitrogen, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA and IIA light metal.

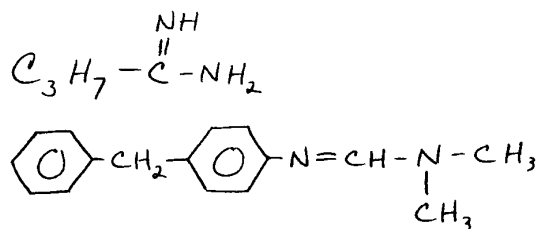
(1) Note. This subclass contains, for example:



- 225** This subclass is indented under subclass 1. Compounds which are amidines and contains the grouping



(1) Note. This subclass contains, for example:



- 226** This subclass is indented under subclass 225. Compounds which are amidino hydrazine containing the grouping in Fig. 1 or amidino hydrazones containing the grouping in Fig. 2.

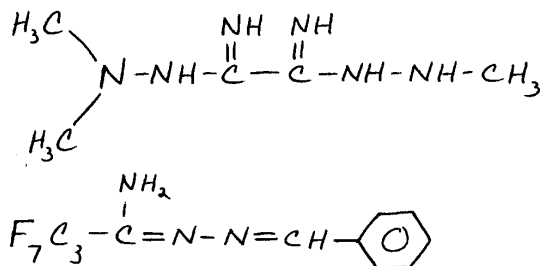


FIGURE 1



FIGURE 2

- (1) Note. This subclass contains, for example:



- 227 This subclass is indented under subclass 226. Compounds which are guanylhazines containing the grouping in Fig. 1 below, or guanylhazones containing the grouping in Fig. 2.

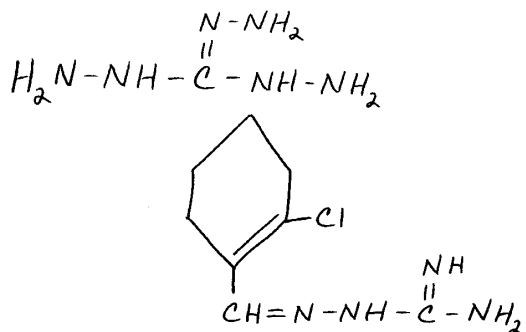


FIGURE 1



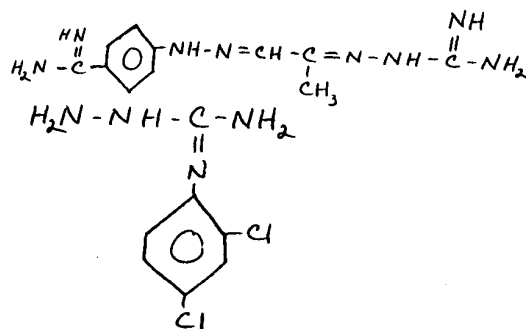
FIGURE 2

- (1) Note. This subclass contains, for example:

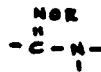


- 228 This subclass is indented under subclass 227. Compounds which contain a benzene ring.

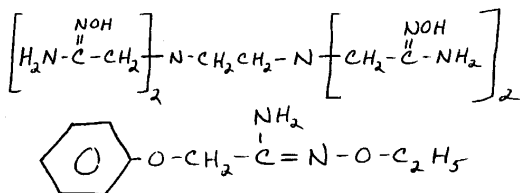
- (1) Note. This subclass contains, for example:



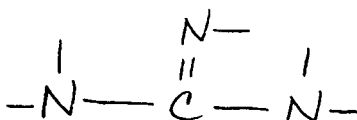
- 229 This subclass is indented under subclass 225. Compounds which are amidoximes containing the grouping below, wherein R may be H, an ester forming group or an ether forming group.



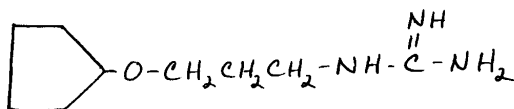
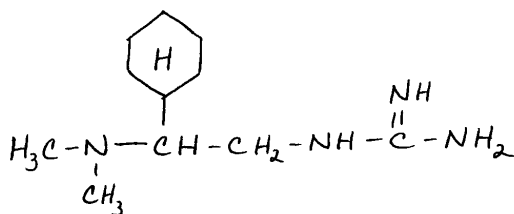
- (1) Note. This subclass contains, for example:



- 230** This subclass is indented under subclass 225. Compounds which are guanidines, containing the grouping

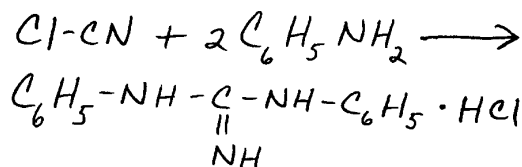


- (1) Note. This subclass contains, for example:

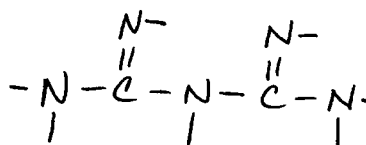


- 231** This subclass is indented under subclass 230. Processes wherein a guanidine is prepared from a thiourea, as for example, by reaction with ammonia or an amino nitrogen containing compound in the presence of a desulfurizing agent.

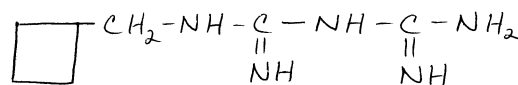
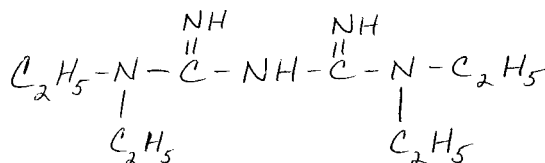
- 232** This subclass is indented under subclass 230. Processes wherein a guanidine is prepared by reaction of a cyanogen halide and an amino nitrogen containing compound, as for example:



- 233** This subclass is indented under subclass 230. Compounds which are biguanides, containing the grouping

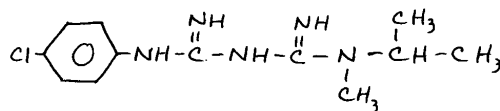
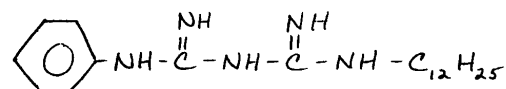


- (1) Note. This subclass contains, for example:



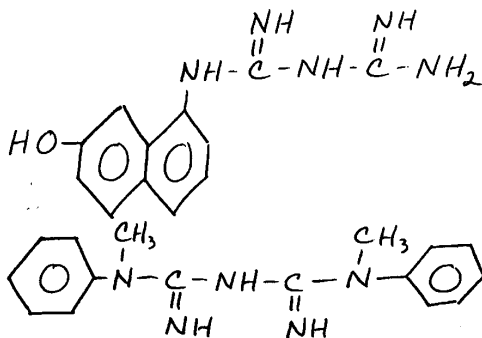
- 234** This subclass is indented under subclass 233. Compounds wherein a biguanide contains a benzene ring.

- (1) Note. This subclass contains, for example:



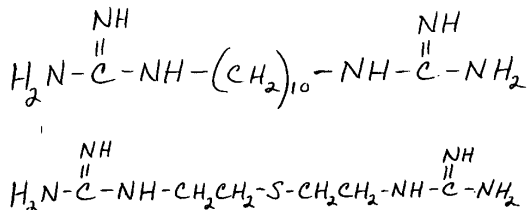
- 235** This subclass is indented under subclass 234. Compounds wherein a biguanide contains more than one ring.

(1) Note. This subclass contains, for example:



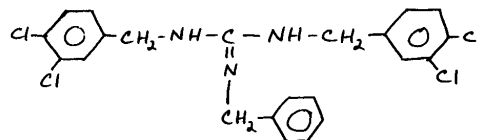
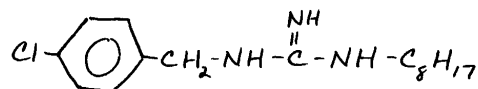
- 236** This subclass is indented under subclass 230. Compounds wherein there are at least two guanidine groups.

(1) Note. This subclass contains, for example:



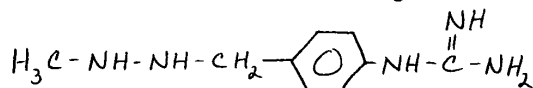
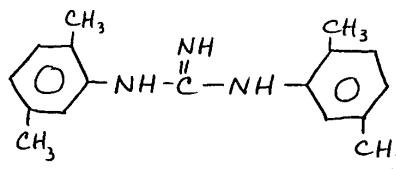
- 237** This subclass is indented under subclass 230. Compounds wherein a guanidine contains a benzene ring.

(1) Note. This subclass contains, for example:



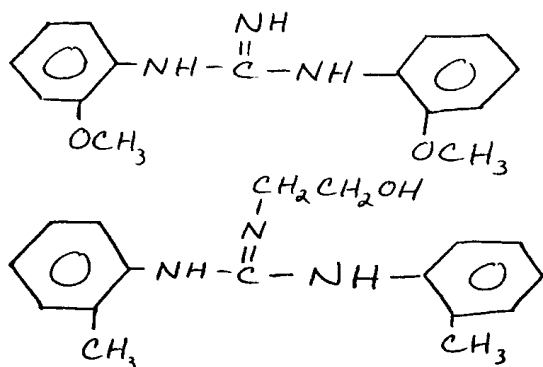
- 238** This subclass is indented under subclass 237. Compounds wherein a guanidine contains a benzene ring bonded directly to a guanidine nitrogen.

(1) Note. This subclass contains, for example:



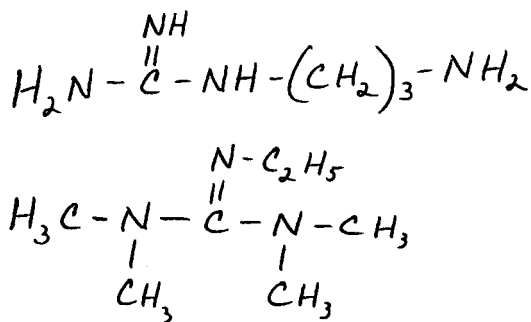
- 239** This subclass is indented under subclass 238. Compounds wherein a guanidine contains a hydroxyl bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



- 240** This subclass is indented under subclass 230. Compounds wherein a guanidine does not contain a ring.

(1) Note. This subclass contains, for example:

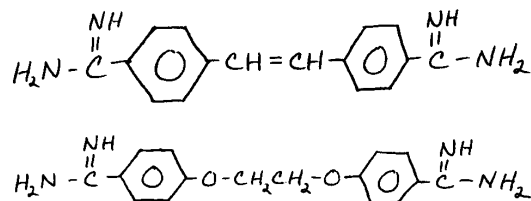


- 241** This subclass is indented under subclass 240. The compound which is guanidine or its salts and processes of preparation not provided for above.

- 242** This subclass is indented under subclass 241. The compound which is guanidine nitrate and processes of preparation not provided for above.

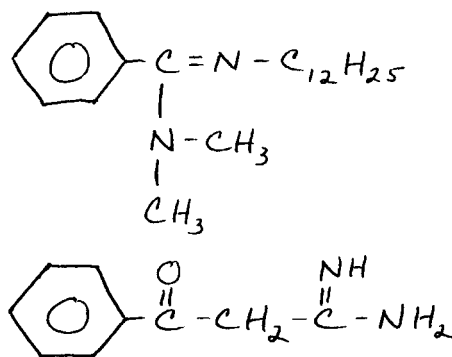
- 243** This subclass is indented under subclass 225. Compounds wherein there is more than one amidine group.

(1) Note. This subclass contains, for example:

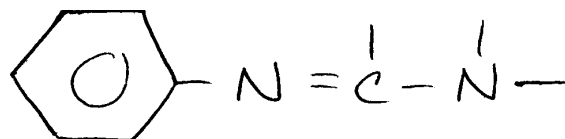


- 244** This subclass is indented under subclass 225. Compounds wherein an amidine contains a benzene ring.

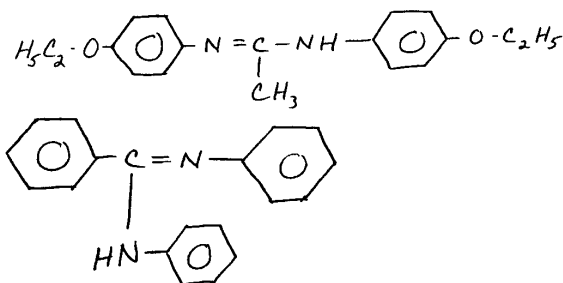
(1) Note. This subclass contains, for example:



- 245** This subclass is indented under subclass 244. Compounds which are N (prime)-aryl formamides containing the grouping

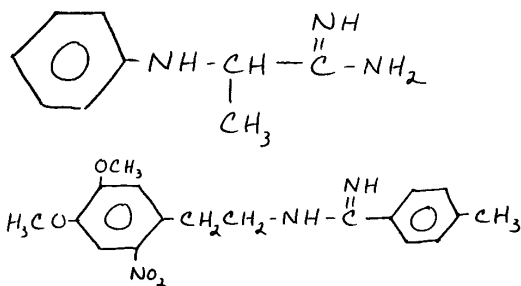


(1) Note. This subclass contains, for example:



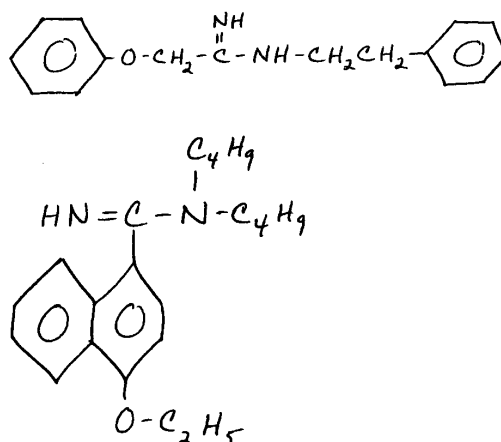
- 246** This subclass is indented under subclass 244. Compounds wherein an amidine contains an additional nitrogen which is nonionically bonded.

(1) Note. This subclass contains, for example:



- 247** This subclass is indented under subclass 244. Compounds wherein an amidine contains a hydroxyl bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

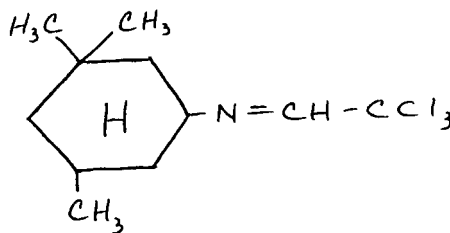
(1) Note. This subclass contains, for example:



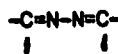
- 248** This subclass is indented under subclass 1. Compounds which are characterized by the presence of the grouping below and correspond in constitution to those formed by reacting an aldehyde or ketone with ammonia or an amino nitrogen containing compound.



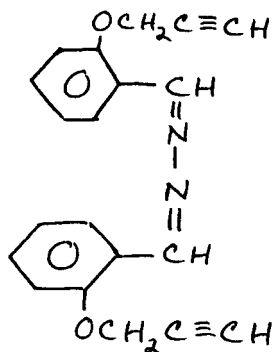
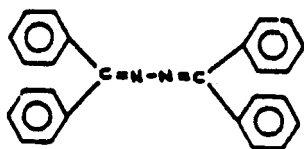
(1) Note. This subclass contains, for example:



- 249** This subclass is indented under subclass 248. Compounds which are azines and contain the grouping below.



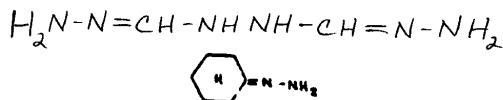
- (1) Note. This subclass contains, for example:



- 250 This subclass is indented under subclass 248. Compounds which are hydrazones containing the grouping below.

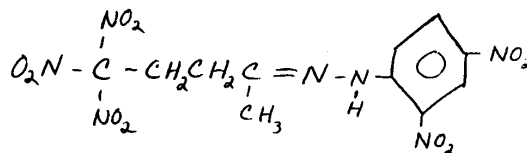
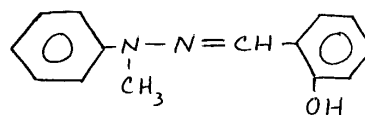


- (1) Note. This subclass contains, for example:



- 251 This subclass is indented under subclass 250. Compounds wherein the hydrazone contains a benzene ring.

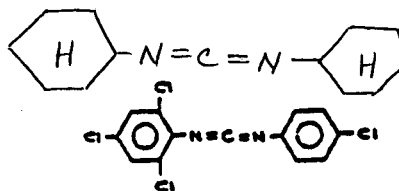
- (1) Note. This subclass contains, for example:



- 252 This subclass is indented under subclass 248. Compounds which are carbodiimides containing the grouping below.



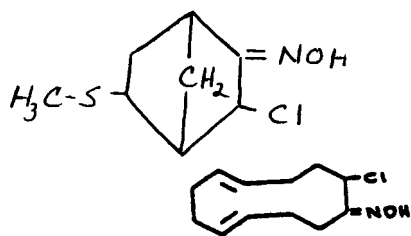
- (1) Note. This subclass contains, for example:



- 253 This subclass is indented under subclass 248. Compounds which are oximes containing the grouping below wherein X may be hydrogen, the carbon of an ether forming group or the residue of an ester forming compound not provided for above.

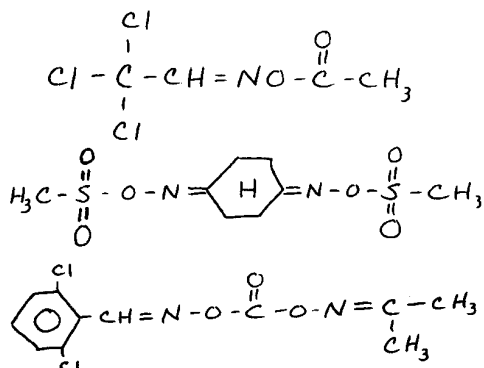


- (1) Note. This subclass contains, for example:



- 254** This subclass is indented under subclass 253. Compounds which are O-esters of oximes wherein X is the residue of an ester forming compound.

(1) Note. This subclass contains, for example:

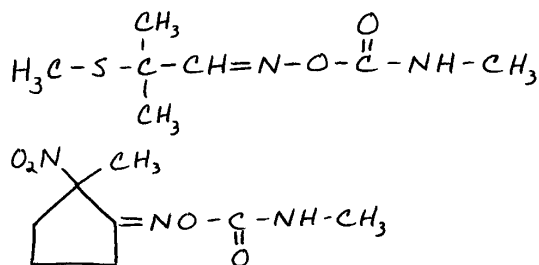


SEE OR SEARCH THIS CLASS, SUBCLASS:

15, for phosphorus containing acid O-esters of oximes.

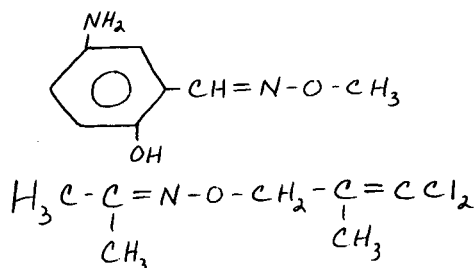
- 255** This subclass is indented under subclass 254. Compounds wherein the residue of the ester forming group is that of a carbamic acid.

(1) Note. This subclass contains, for example:



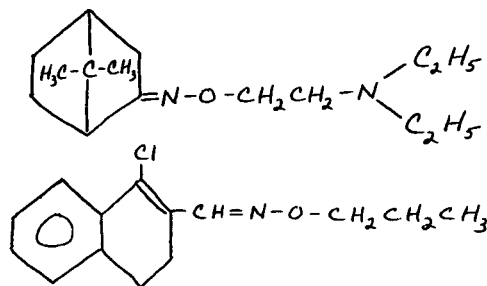
- 256** This subclass is indented under subclass 253. Compounds which are O-ethers of oximes wherein X is the carbon of an ether forming group.

(1) Note. This subclass contains, for example:



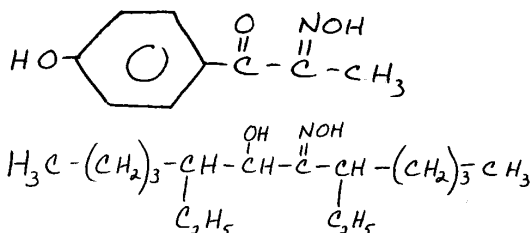
- 257** This subclass is indented under subclass 256. Compounds wherein the O-ether oxime contains a polycyclic ring system.

(1) Note. This subclass contains, for example:



- 258** This subclass is indented under subclass 253. Compounds wherein a carbon atom in a position alpha to the oxime group is substituted by a double-bonded oxygen or an -OX, wherein X may be H, C, or a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



- 259** This subclass is indented under subclass 253. Processes wherein an oxime is produced directly by reaction of an aldehyde or ketone with hydroxyl amine or a salt thereof.

- 260** This subclass is indented under subclass 253. Processes wherein an oxime is produced directly by reduction of a nitronic acid salt, as for example, an alkali metal salt of a nitroparaffin.

- 261** This subclass is indented under subclass 253. Processes wherein an oxime is produced directly by reduction of a nitro group, as for example, with hydrogen or carbon monoxide.

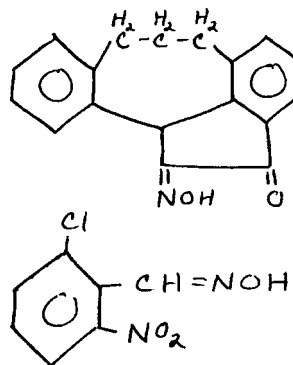
- 262** This subclass is indented under subclass 253. Processes wherein an oxime is produced directly by oxidation of a hydroxyl amine group.

- 263** This subclass is indented under subclass 253. Processes wherein an oxime is produced directly by reaction of an olefinic compound with a nitrosating agent such as, for example, nitrous acid or nitrosyl chloride.

- 264** This subclass is indented under subclass 253. Processes which are directed to the purification, separation, or recovery of oximes.

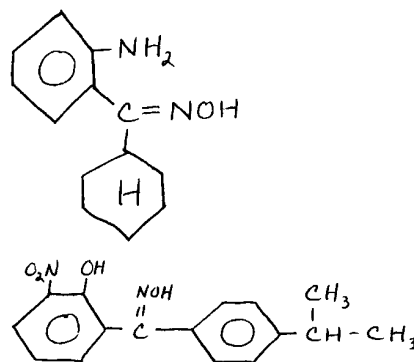
- 265** This subclass is indented under subclass 253. Compounds wherein an oxime contains a benzene ring.

(1) Note. This subclass contains, for example:



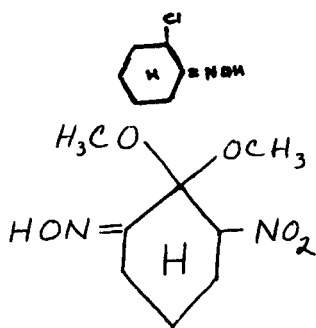
- 266** This subclass is indented under subclass 265. Compounds wherein two rings are bonded directly to the carbon of an oxime group.

(1) Note. This subclass contains, for example:



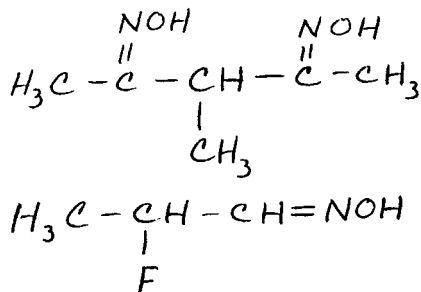
- 267** This subclass is indented under subclass 253. Compounds wherein a carbon of a cyclohexyl group is bonded directly to the oxime nitrogen.

(1) Note. This subclass contains, for example:



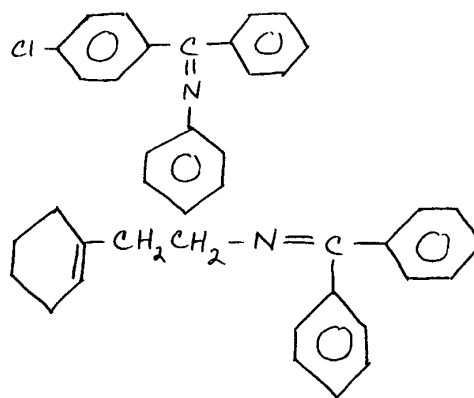
- 268** This subclass is indented under subclass 253. Compounds wherein an oxime does not contain a ring.

(1) Note. This subclass contains, for example:



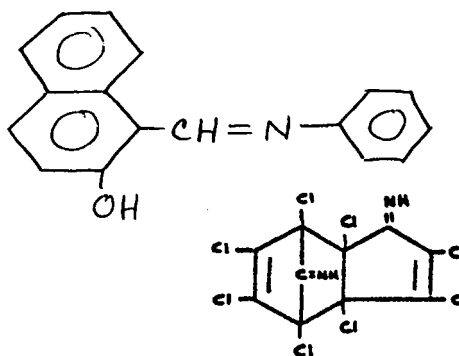
- 269** This subclass is indented under subclass 248. Compounds wherein two rings are directly bonded to the same carbon which, in turn, is double bonded to an amino nitrogen, e.g., auramines.

(1) Note. This subclass contains, for example:



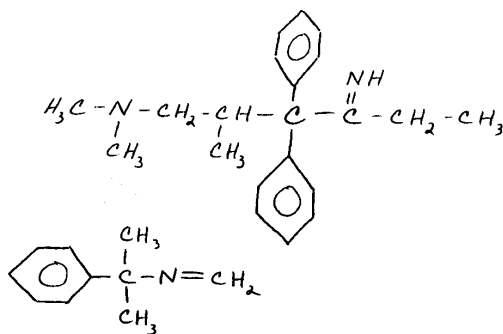
- 270** This subclass is indented under subclass 248. Compounds wherein an aldimine or ketimine containing compound contains a polycyclo ring system.

(1) Note. This subclass contains, for example:

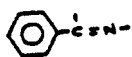


- 271** This subclass is indented under subclass 248. Compounds which are aldimines or ketimines and contain a benzene ring.

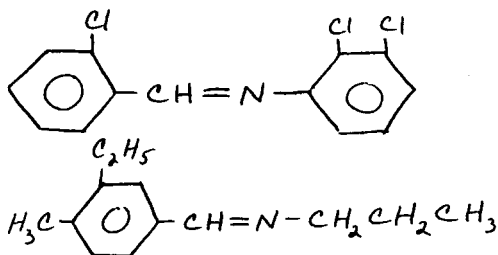
(1) Note. This subclass contains, for example:



- 272** This subclass is indented under subclass 271. Compounds which are benzylideneimines containing the grouping below.

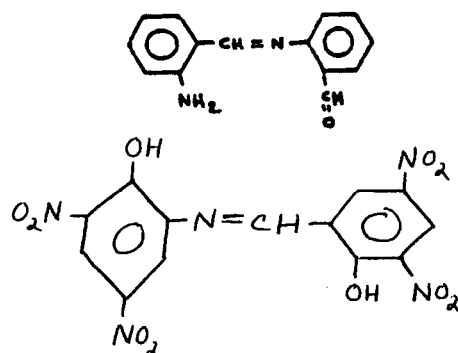


- (1) Note. This subclass contains, for example:



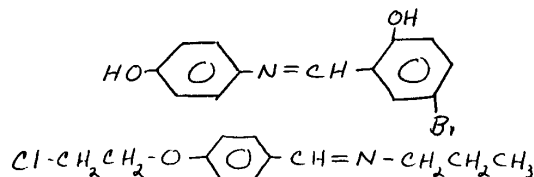
- 273** This subclass is indented under subclass 272. Compounds wherein a substituent attached to the ring of the benzylidene group contains a nitrogen which is directly bonded to carbon.

- (1) Note. This subclass contains, for example:



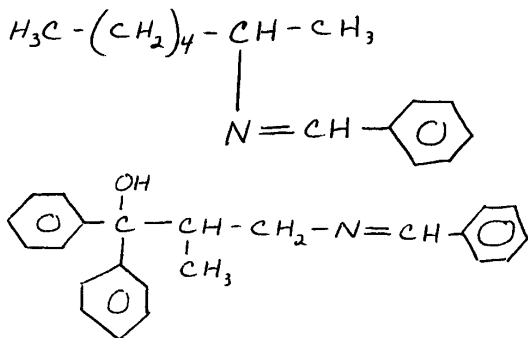
- 274** This subclass is indented under subclass 272. Compounds wherein a substituent attached to the ring of the benzylidene group contains an OH bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

- (1) Note. This subclass contains, for example:



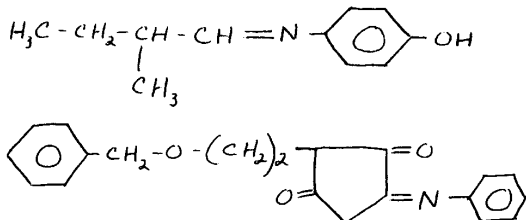
- 275** This subclass is indented under subclass 272. Compounds wherein the benzene of the benzylidene group is unsubstituted.

- (1) Note. This subclass contains, for example:



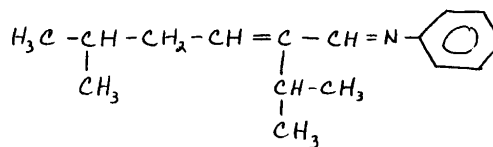
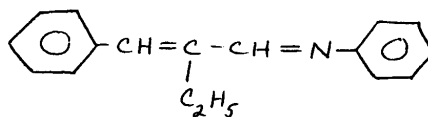
- 276** This subclass is indented under subclass 271. Compounds wherein the aldimine or ketimine contains hydroxyl bonded directly to carbon, or an ether, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



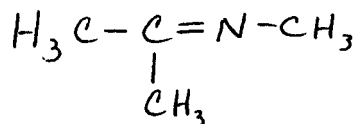
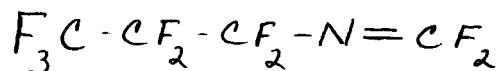
- 277** This subclass is indented under subclass 271. Compounds wherein an unsubstituted benzene is directly attached to the imino nitrogen.

(1) Note. This subclass contains, for example:



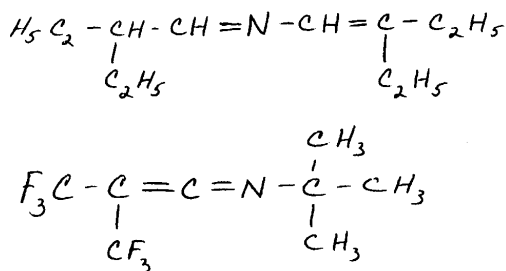
- 278** This subclass is indented under subclass 248. Compounds wherein an aldimine or ketimine does not contain a ring.

(1) Note. This subclass contains, for example:



- 279** This subclass is indented under subclass 278. Compounds wherein the aldimine or ketimine contains a double or triple bond between two carbons.

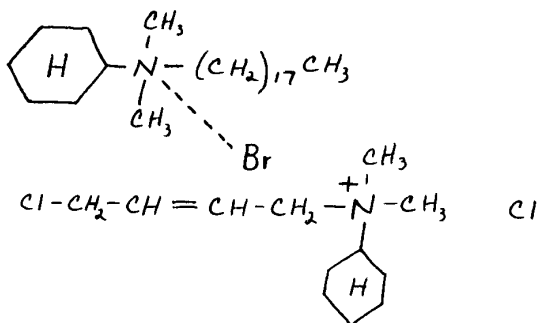
(1) Note. This subclass contains, for example:



**280** This subclass is indented under subclass 1. Compounds which are formed by addition of a phenol or thiophenol to an amino nitrogen containing compound, as for example:  $\text{RNH}_2$  .  $\text{HOC}_6\text{H}_5$  .

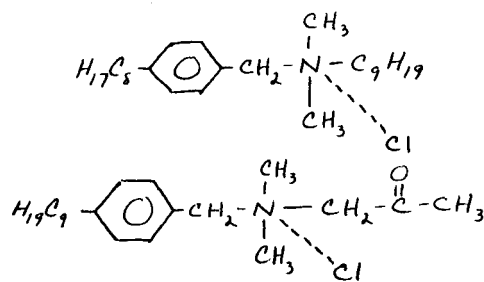
**281** This subclass is indented under subclass 1. Compounds which are quaternary ammonium compounds wherein a pentavalent nitrogen is bonded by four valences to carbon.

(1) Note. This subclass contains, for example:



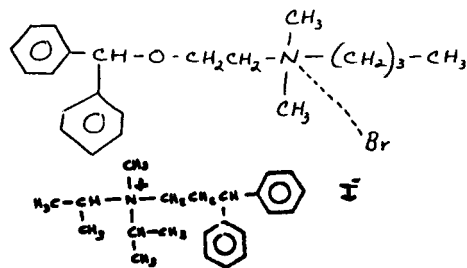
**282** This subclass is indented under subclass 281. Compounds wherein the quaternary ammonium compound contains a benzene ring.

(1) Note. This subclass contains, for example:



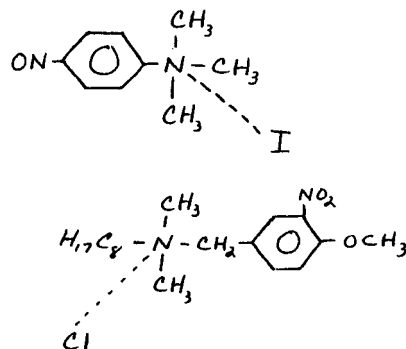
**283** This subclass is indented under subclass 282. Compounds wherein the quaternary ammonium contains two rings bonded directly to the same carbon.

(1) Note. This subclass contains, for example:



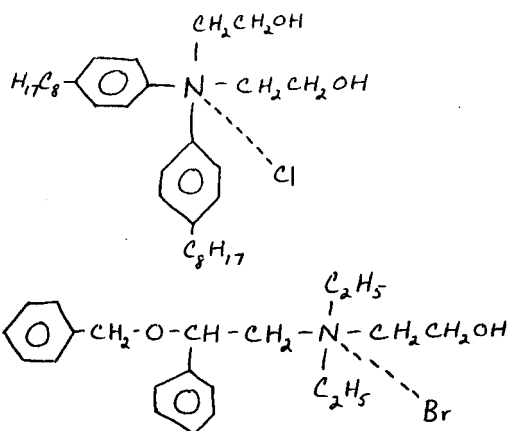
**284** This subclass is indented under subclass 282. Compounds wherein the quaternary ammonium contains a nitro or nitroso group directly bonded to carbon.

(1) Note. This subclass contains, for example:



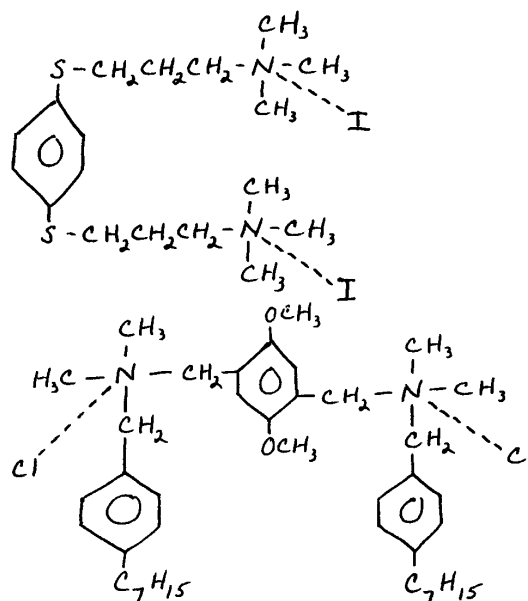
- 285** This subclass is indented under subclass 282. Compounds wherein the quaternary ammonium contains an OH bonded directly to carbon, or an ether group, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



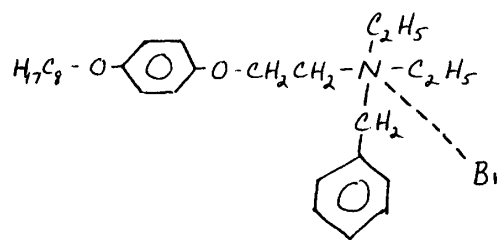
- 286** This subclass is indented under subclass 285. Compounds which contain more than one quaternary ammonium group.

(1) Note. This subclass contains, for example:



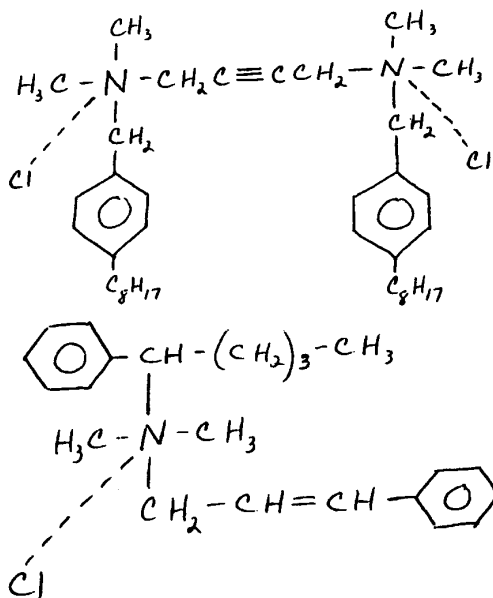
- 287** This subclass is indented under subclass 285. Compounds wherein the quaternary ammonium contains an -OX group bonded directly to a ring carbon, where X may be H, C, a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



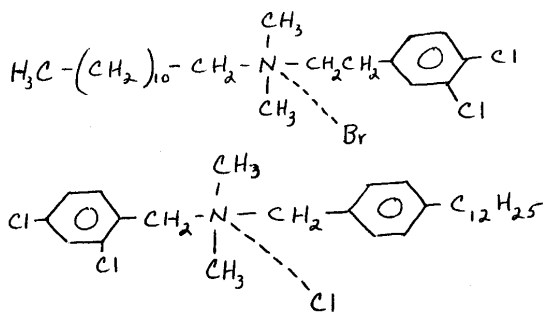
- 288** This subclass is indented under subclass 282. Compounds wherein the quaternary ammonium contains a double or triple bond between two acyclic carbons.

(1) Note. This subclass contains, for example:



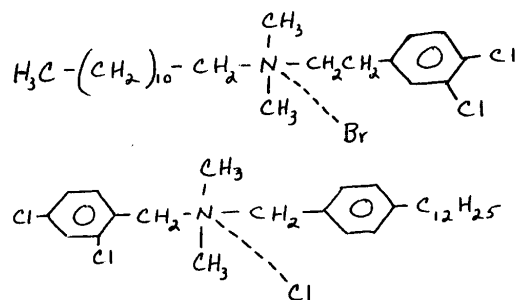
- 289** This subclass is indented under subclass 282. Compounds wherein the quaternary ammonium contains nonionically bonded halogen.

(1) Note. This subclass contains, for example:



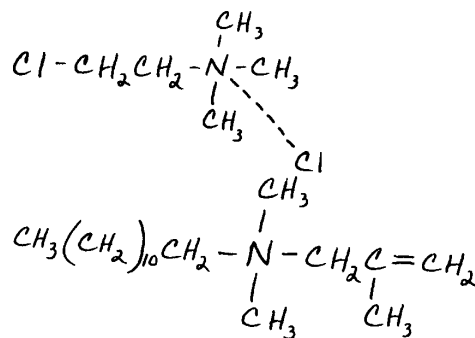
- 290** This subclass is indented under subclass 282. Compounds which contain more than one quaternary ammonium group.

(1) Note. This subclass contains, for example:



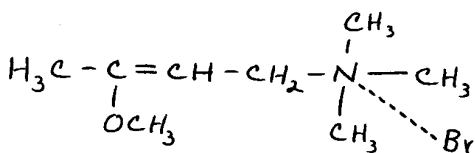
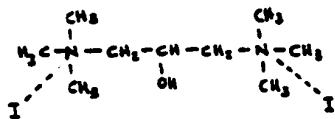
- 291** This subclass is indented under subclass 281. Compounds wherein a quaternary ammonium compound does not contain a ring.

(1) Note. This subclass contains, for example:

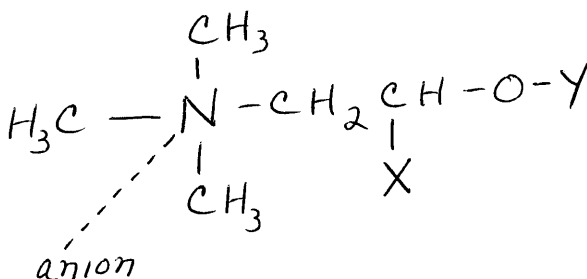


- 292** This subclass is indented under subclass 291. Compounds which contain an OH bonded directly to carbon, or an ether group, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

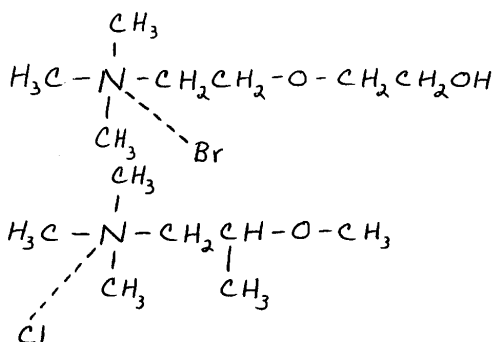
(1) Note. This subclass contains, for example:



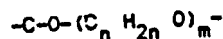
- 293 This subclass is indented under subclass 292. Compounds which are choline, beta-alkyl cholines, or ethers thereof and their salts having the structure below wherein X and Y are H or C.



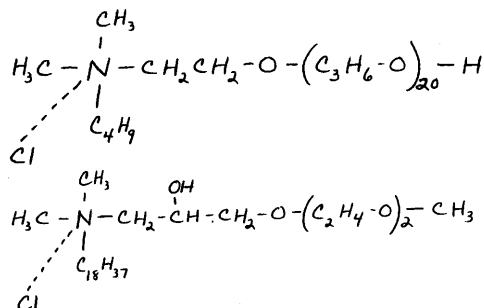
- (1) Note. This subclass contains, for example:



- 294 This subclass is indented under subclass 292. Compounds wherein a quaternary ammonium contains the grouping below where n and m are positive integers and m is greater than one.

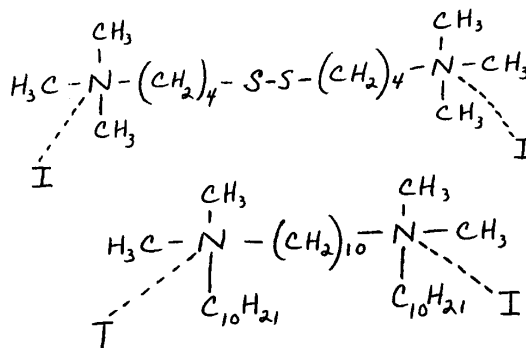


- (1) Note. This subclass contains, for example:



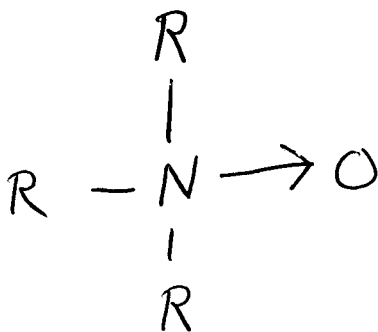
- 295 This subclass is indented under subclass 291. Compounds which contain more than one quaternary ammonium group.

- (1) Note. This subclass contains, for example:

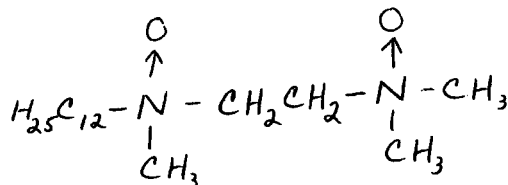


- 296 This subclass is indented under subclass 291. Processes for the preparation, purification, separation, or recovery of quaternary ammonium compounds classifiable only in that subclass.

- 297 This subclass is indented under subclass 1. Compounds which are amine oxides characterized by the structure below.



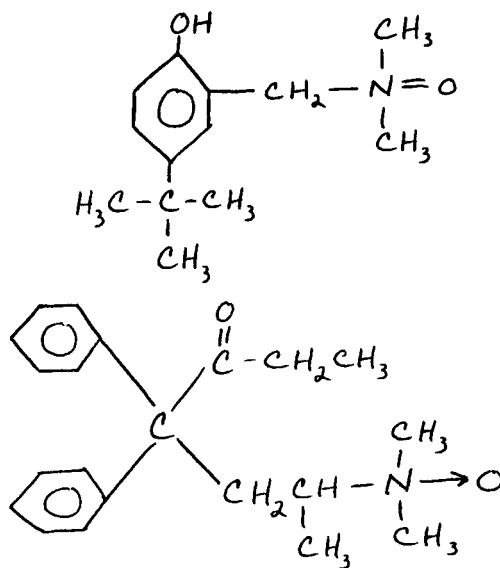
- (1) Note. This subclass contains, for example:



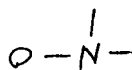
- 298** This subclass is indented under subclass 297. Processes for the preparation, purification, separation, or recovery of amine oxides.

- 299** This subclass is indented under subclass 297. Compounds wherein the amine oxide contains a benzene ring.

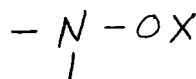
- (1) Note. This subclass contains, for example:



- 300** This subclass is indented under subclass 1. Compounds which are nitroxides, free radicals, containing the structure in Fig. 1, or hydroxyl amines or their O-ethers or O-esters containing the structure in Fig. 2 wherein X is H, C, or the residue of an esterifying acid group.

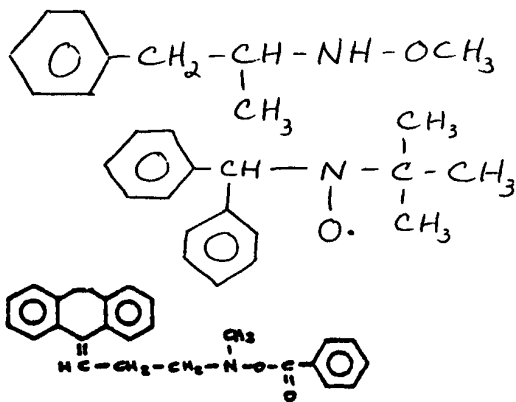


**FIGURE 1**



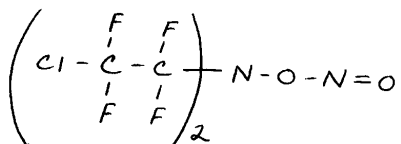
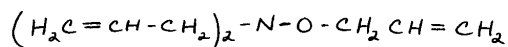
**FIGURE 2**

- (1) Note. This subclass also contains compounds which are O-ethers wherein the amino nitrogen is unsubstituted.
- (2) Note. This subclass contains, for example:



- 301** This subclass is indented under subclass 300. Compounds which are nitroxides, hydroxylamines, or their O-ethers or O-esters which do not contain a ring.

(1) Note. This subclass contains, for example:



- 302** This subclass is indented under subclass 1. Processes for the formation of a racemic mixture from an amino nitrogen containing enantiomer (optical isomer), per se, or together with the separation of the enantiomers of the racemic mixture.

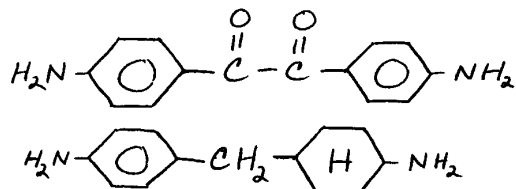
- 303** This subclass is indented under subclass 1. Processes which are directed to the resolution (separation) of optical isomers, which may be diastereomers or enantiomers.

- 304** This subclass is indented under subclass 303. Processes wherein the optical isomers being separated contain a benzene ring.

- 305** This subclass is indented under subclass 1. Compounds not provided for above, which contain a benzene ring.

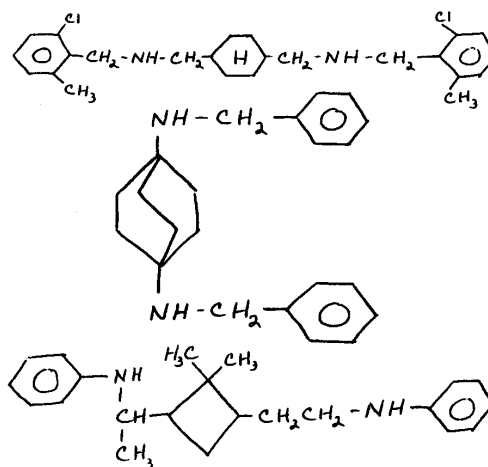
(1) Note. This is the residual subclass for aromatic amino nitrogen compounds not specifically provided for below.

(2) Note. This subclass contains, for example:



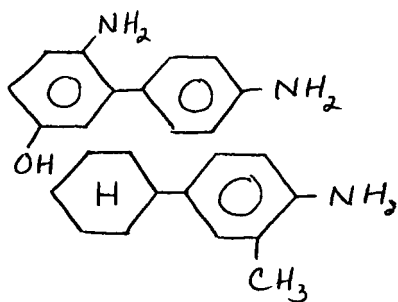
- 306** This subclass is indented under subclass 305. Compounds wherein a benzene ring or benzene containing polycyclo is bonded to an alicyclic ring or ring system through a single atom or an acyclic chain and the alicyclic group contains more than one amino nitrogen attached to it either directly or through a single atom or acyclic chain.

(1) Note. This subclass contains, for example:



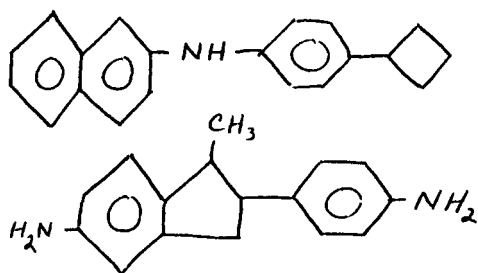
- 307** This subclass is indented under subclass 305. Compounds wherein a benzene ring is bonded directly to another ring and one or more amino nitrogens are bonded directly only to either ring or both rings.

- (1) Note. This subclass contains, for example:



- 308** This subclass is indented under subclass 307. Compounds which contain a polycyclo ring system.

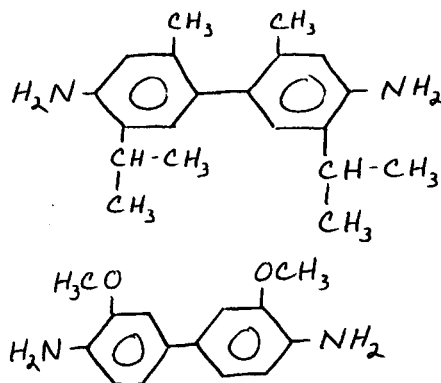
- (1) Note. This subclass contains, for example:



- 309** This subclass is indented under subclass 307. Compounds which are benzidines containing the grouping below.

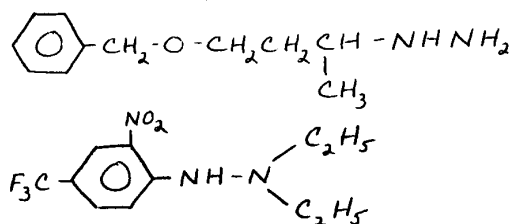


- (1) Note. This subclass contains, for example:



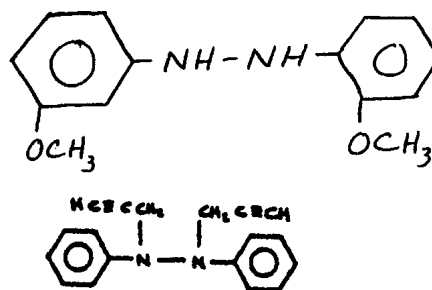
- 310** This subclass is indented under subclass 305. Compounds which are hydrazines containing the radical -NHNH- or its hydrogen substitution products.

- (1) Note. This subclass contains, for example:



- 311** This subclass is indented under subclass 310. Compounds wherein each nitrogen of the hydrazine radical is bonded directly to a benzene ring.

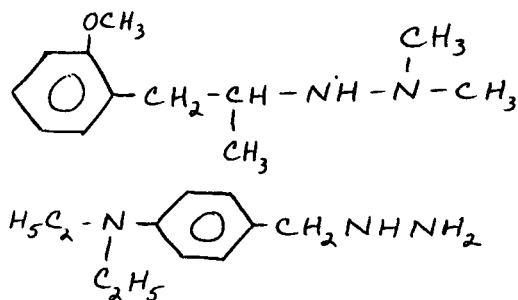
- (1) Note. This subclass contains, for example:



**312** This subclass is indented under subclass 311. Processes wherein the compound is formed by reducing a nitrogen containing group with metal and metallic hydroxide.

**313** This subclass is indented under subclass 310. Compounds wherein an aralkyl group is bonded directly to the nitrogen of a hydrazine radical.

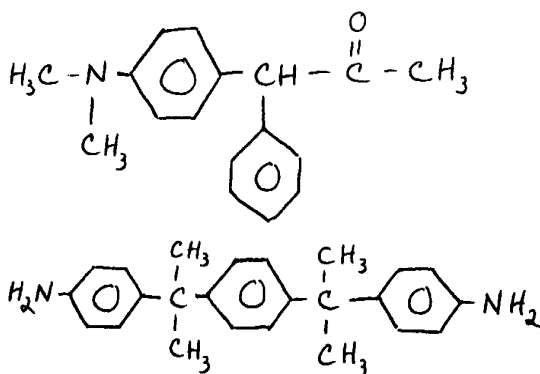
(1) Note. This subclass contains, for example:



**314** This subclass is indented under subclass 310. Processes for the preparation, purification, separation or recovery of a hydrazine group containing compound.

**315** This subclass is indented under subclass 305. Compounds wherein two benzene rings or benzene containing polycyclos are bonded to the same carbon.

(1) Note. This subclass contains, for example:

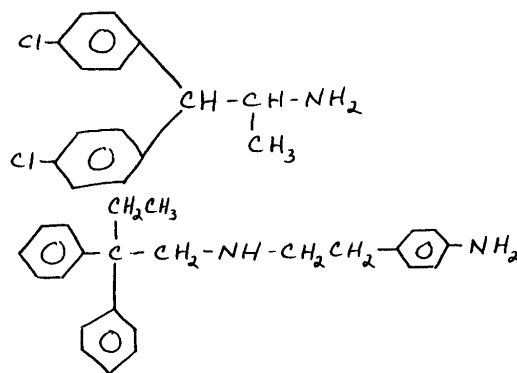


SEE OR SEARCH CLASS:

552, Organic Compounds, subclasses 101+ for triarylmethyl compounds.

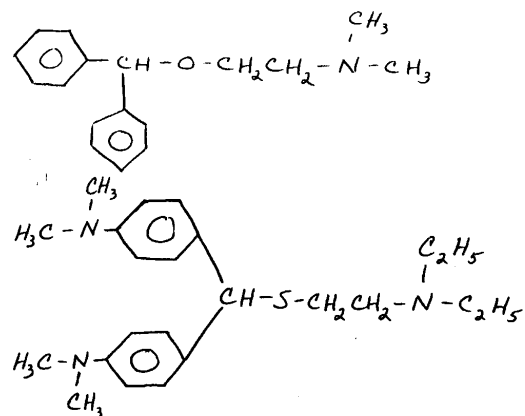
**316** This subclass is indented under subclass 315. Compounds wherein an amino nitrogen is indirectly bonded to the inter aryl carbon through a single atom or an acyclic chain.

(1) Note. This subclass contains, for example:



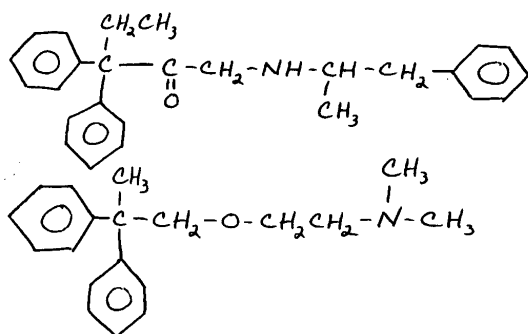
**317** This subclass is indented under subclass 316. Compounds wherein oxygen or sulfur is directly bonded to the inter aryl carbon and is part of the acyclic chain which contains the amino nitrogen.

(1) Note. This subclass contains, for example:



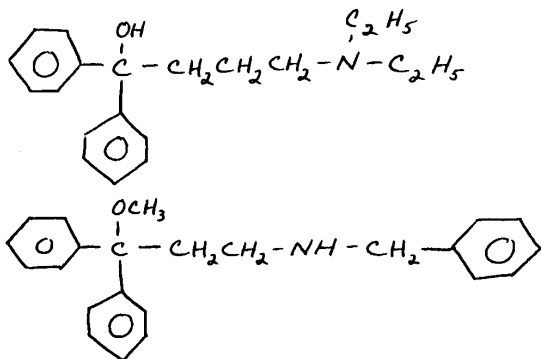
**318** This subclass is indented under subclass 317. Processes for the preparation, purification, separation or recovery of compounds classified in that subclass.

**319** This subclass is indented under subclass 361. Compounds which contain oxygen, carbonyl, a double bond or a triple bond in the chain; or wherein ether, carbonyl, a double bond, a triple bond or a hydroxyl, which hydroxyl is bonded directly to carbon, is part of a substituent, which substituent is bonded directly to the acyclic carbon or chain, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.



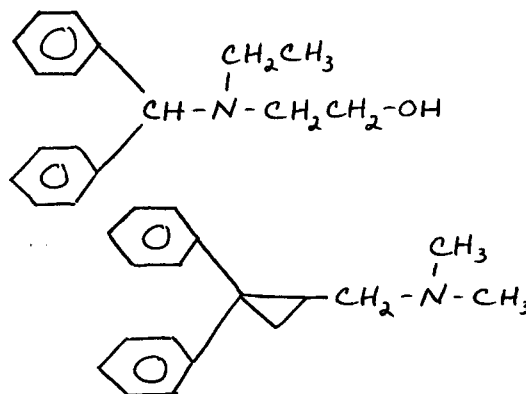
**320** This subclass is indented under subclass 316. Compounds wherein an -OX is bonded directly to the inter aryl carbon where X may be H, C, a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



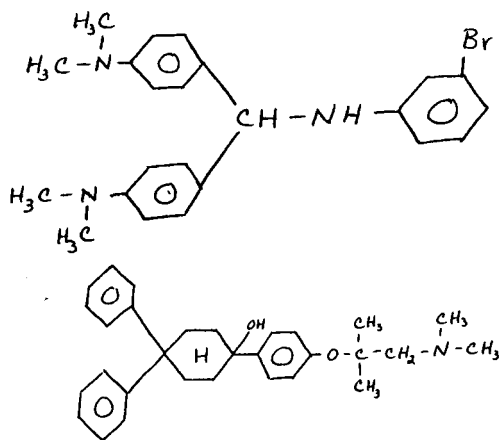
**321** This subclass is indented under subclass 315. Compounds wherein an amino nitrogen is bonded directly to the inter aryl carbon.

(1) Note. This subclass contains, for example:



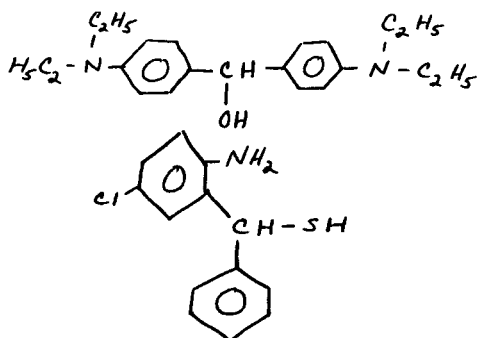
**322** This subclass is indented under subclass 315. Compounds wherein the inter aryl carbon is a ring member of an alicyclic ring or ring system.

(1) Note. This subclass contains, for example:



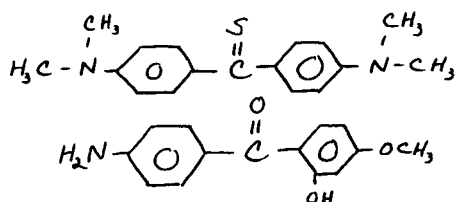
**323** This subclass is indented under subclass 315. Compounds wherein an amino nitrogen is indirectly attached to the benzene ring or benzene containing polycyclo through a single atom or an acyclic chain.





- 328** This subclass is indented under subclass 315. Compounds which are benzophenones or benzothiophenones wherein the inter aryl carbon is part of a carbonyl or thiocarbonyl group.

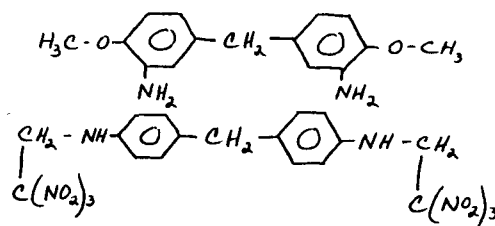
(1) Note. This subclass contains, for example:



- 329** This subclass is indented under subclass 328. Processes for the preparation, purification, separation, recovery of benzophenones or benzothiophenones.

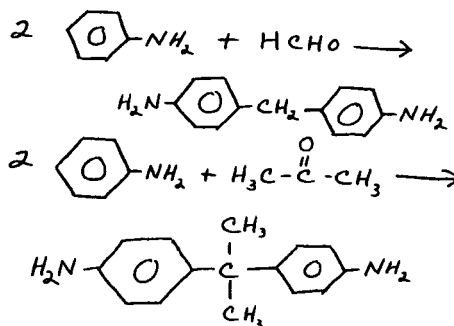
- 330** This subclass is indented under subclass 315. Compounds wherein two phenyl groups, each having an amino nitrogen directly attached, are directly bonded to the same carbon (i.e., diamino diphenyl methanes).

(1) Note. This subclass contains, for example:



- 331** This subclass is indented under subclass 330. Processes wherein an amino nitrogen containing compound is condensed with an aldehyde or ketone, as for example, the condensation of formaldehyde or acetone with aniline.

(1) Note. This subclass contains, for example:



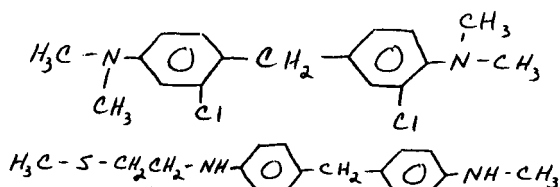
- 332** This subclass is indented under subclass 331. Processes wherein the reaction is carried out in the presence of a solid catalyst.

- 333** This subclass is indented under subclass 331. Processes wherein the reaction is carried out in the presence of hydrochloric acid.

- 334** This subclass is indented under subclass 330. Processes directed to the purification, separation, or recovery of diamino diphenyl methanes.

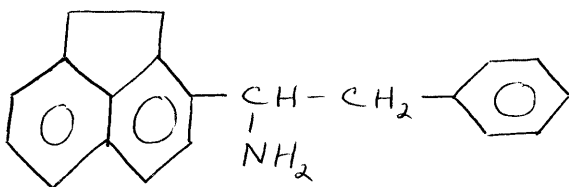
- 335** This subclass is indented under subclass 330. Compounds which contain halogen or sulfur nonionically bonded to carbon.

(1) Note. This subclass contains, for example:



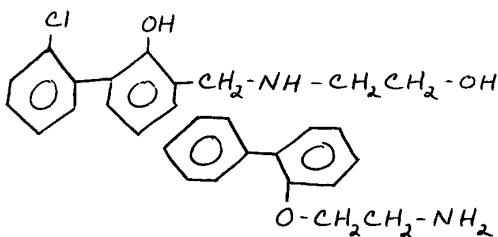
- 336** This subclass is indented under subclass 305. Compounds wherein an amino nitrogen is indirectly bonded to an aryl ring or ring system through a single acyclic carbon or through an acyclic chain.

(1) Note. This subclass contains, for example:



- 337** This subclass is indented under subclass 336. Compounds wherein the aryl ring or ring system is bonded directly to another ring.

(1) Note. This subclass contains, for example:

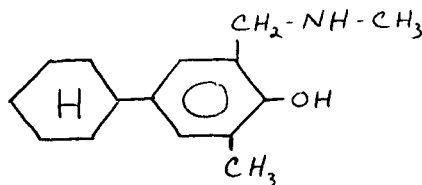


SEE OR SEARCH THIS CLASS, SUBCLASS:

307, for compounds which contain two rings or ring systems bonded directly to each other and all amino nitrogens are bonded directly to a ring or ring system.

- 338** This subclass is indented under subclass 337. Compounds wherein the other ring is alicyclic.

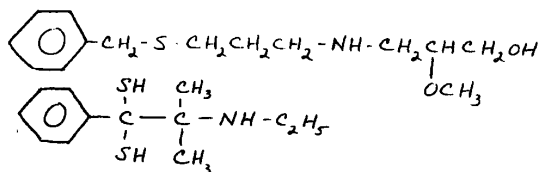
(1) Note. This subclass contains, for example:



- 339** This subclass is indented under subclass 338. Compounds wherein the alicyclic ring contains an -OH bonded to carbon wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal or an ether or carbonyl group.

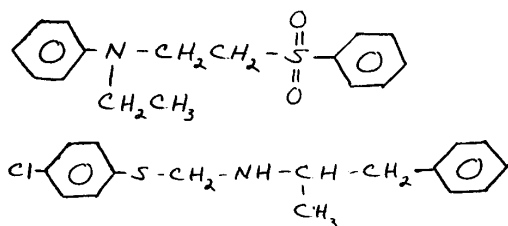
- 340** This subclass is indented under subclass 336. Compounds wherein the chain contains sulfur or has an acyclic sulfur substituent and there is no amino nitrogen between the sulfur and the ring.

(1) Note. This subclass contains, for example:



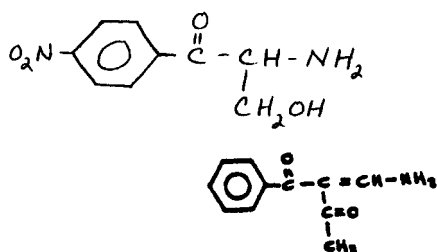
- 341** This subclass is indented under subclass 340. Compounds wherein the sulfur is part of the chain and is bonded directly to the aryl ring or ring system.

(1) Note. This subclass contains, for example:



- 342** This subclass is indented under subclass 336. Compounds wherein the chain contains a carbonyl or has an acyclic carbonyl substituent and there is no amino nitrogen between the carbonyl and the ring or ring system.

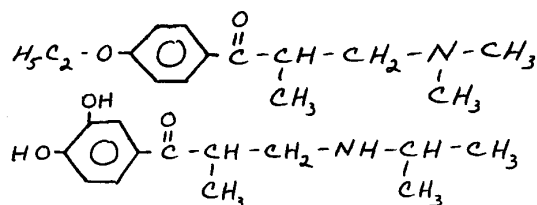
(1) Note. This subclass contains, for example:



- 343** This subclass is indented under subclass 342. Processes for the preparation, purification, separation, or recovery of compounds defined therein and in its dependent subclasses.

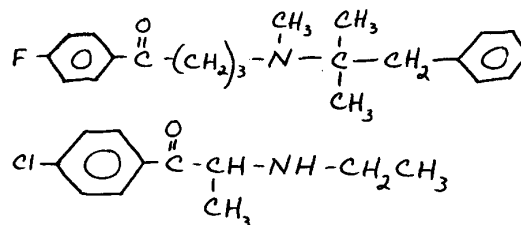
- 344** This subclass is indented under subclass 342. Compounds wherein the aryl ring or ring system contains an -OX group bonded directly to a ring carbon and X may be H or C or a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



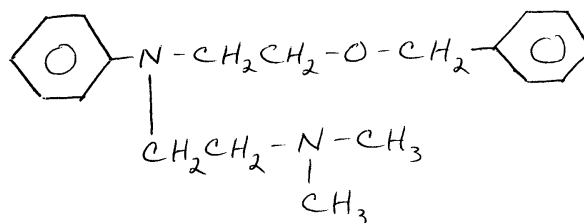
- 345** This subclass is indented under subclass 342. Compounds wherein the aryl ring or ring system contains halogen bonded directly to a ring carbon.

(1) Note. This subclass contains, for example:



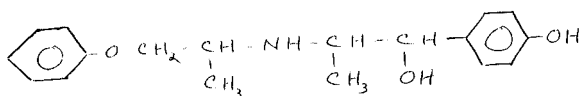
- 346** This subclass is indented under subclass 336. Compounds wherein oxygen is part of the chain.

(1) Note. This subclass contains, for example:



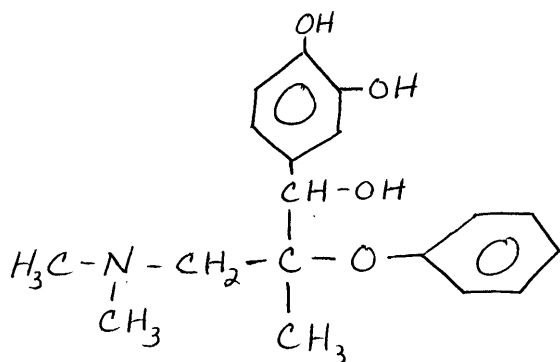
- 347** This subclass is indented under subclass 346. Compounds wherein oxygen which is part of the chain is bonded directly to the aryl ring or ring system.

(1) Note. This subclass contains, for example:



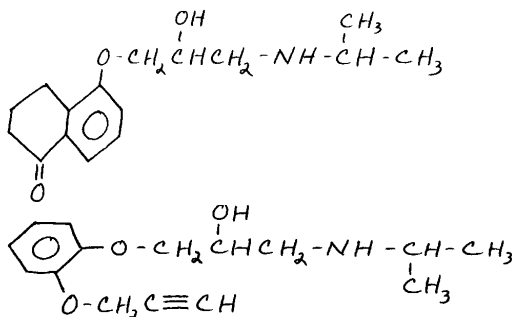
- 348** This subclass is indented under subclass 347. Compounds wherein the chain contains an -OH bonded to carbon wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion by a Group IA or IIA light metal or an ether group as substituted and there is no amino nitrogen between this group and the ring or ring system.

(1) Note. This subclass contains, for example:



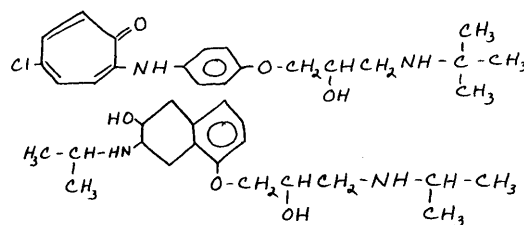
- 349** This subclass is indented under subclass 348. Compounds which are phenoxy alkanol amines wherein the additional substituent is a hydroxyl group bonded directly to a chain carbon between the amino nitrogen and the aryl ring or ring system.

(1) Note. This subclass contains, for example:



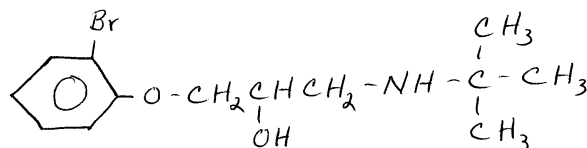
- 350** This subclass is indented under subclass 349. Compounds wherein the nitrogen is bonded directly to a ring carbon of the aryl ring or ring system.

(1) Note. This subclass contains, for example:



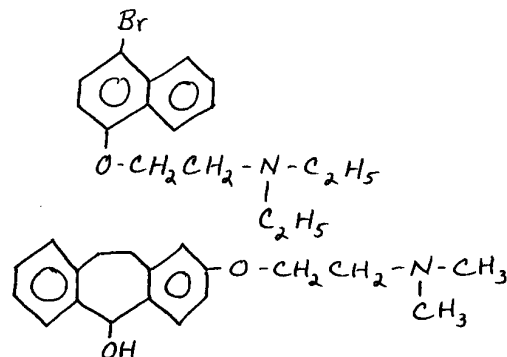
- 351** This subclass is indented under subclass 349. Compounds wherein halogen is bonded directly to a ring carbon of the aryl ring or ring system.

(1) Note. This subclass contains, for example:



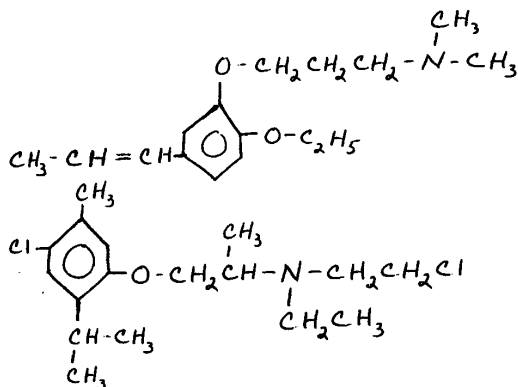
- 352** This subclass is indented under subclass 347. Compounds wherein the ring system is polycyclic.

(1) Note. This subclass contains, for example:



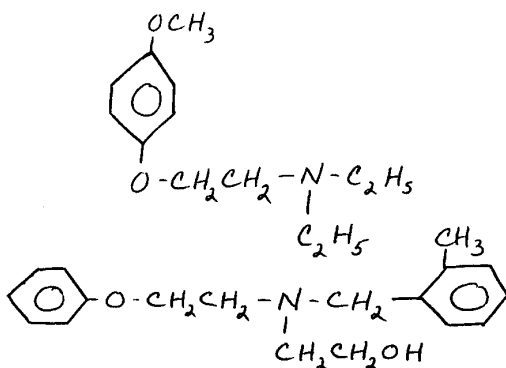
- 353** This subclass is indented under subclass 347. Compounds wherein the part of the chain between the amino nitrogen and oxygen is unsubstituted or substituted by acyclic hydrocarbon groups.

(1) Note. This subclass contains, for example:



- 354** This subclass is indented under subclass 353. Compounds which are aryloxyethylamines, wherein the part of the chain between the amino nitrogen and the oxygen contains two carbons and is unsubstituted.

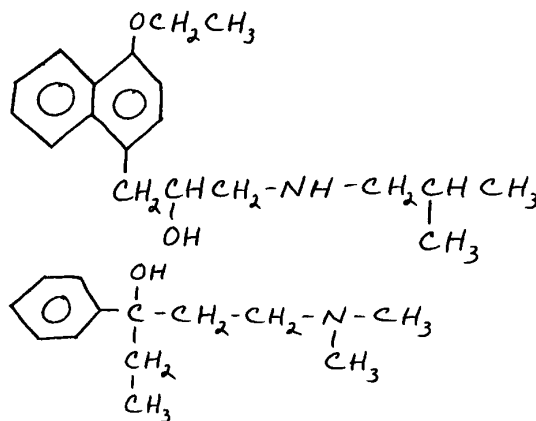
(1) Note. This subclass contains, for example:



- 355** This subclass is indented under subclass 336. Compounds which contain hydroxyl, which is bonded directly to carbon, or an ether oxygen attached directly or indirectly to the acyclic carbon or chain by acyclic nonionic bonding,

with no amino nitrogen between the hydroxyl or ether oxygen and the aryl ring or ring system, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



- 356** This subclass is indented under subclass 355. Processes wherein the compounds are prepared directly by reduction.

(1) Note. For processes of reductive amination, see the appropriate compound subclass.

- 357** This subclass is indented under subclass 356. Processes wherein the reduction is by direct hydrogenation.

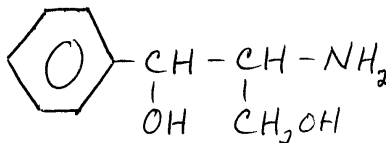
- 358** This subclass is indented under subclass 357. Processes wherein a Group VIII noble metal containing catalyst is utilized in the hydrogenation.

- 359** This subclass is indented under subclass 355. Processes wherein the compounds are prepared directly by hydrolysis, as for examples of an amide.

- 360** This subclass is indented under subclass 355. Compounds wherein an additional hydroxyl or an ether wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal is bonded to the carbon or the chain

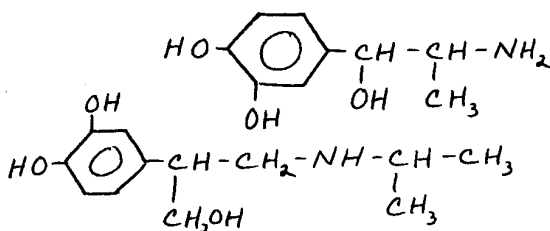
between the amino nitrogen and the aryl ring or ring system.

- (1) Note. This subclass contains, for example :



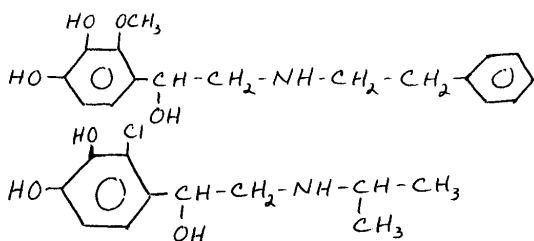
- 361** This subclass is indented under subclass 355. Compounds wherein the aryl ring or ring system has more than one hydroxy group wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal bonded directly to a ring carbon.

- (1) Note. This subclass contains, for example:



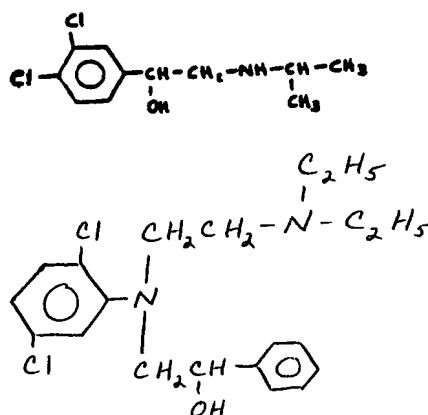
- 362** This subclass is indented under subclass 361. Compounds wherein the aryl ring or ring system contains at least four substituents bonded directly to ring carbons.

- (1) Note. This subclass contains, for example:



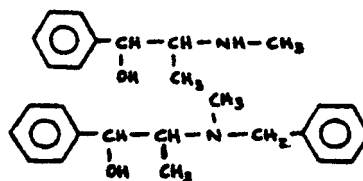
- 363** This subclass is indented under subclass 355. Compounds which are beta - OX phenethylamines wherein the chain contains two carbon atoms and a benzene ring and - OX group are bonded directly to the carbon beta to the amino nitrogen, wherein the X may be H, a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

- (1) Note. This subclass contains, for example:



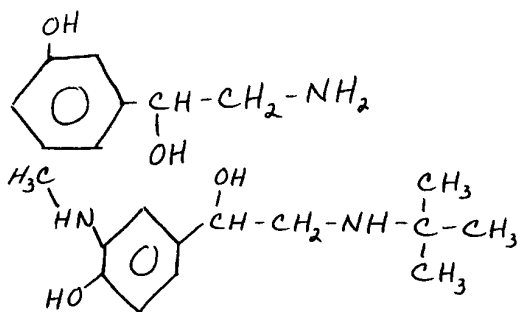
- 364** This subclass is indented under subclass 363. Compounds wherein there is an acyclic hydrocarbyl substituent bonded directly to the chain carbon which is in a position alpha to the amino nitrogen.

- (1) Note. This subclass contains, for example:



- 365** This subclass is indented under subclass 363. Compounds wherein the aryl ring or ring system contains an -OX group bonded directly to a ring carbon where X is H, C, a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

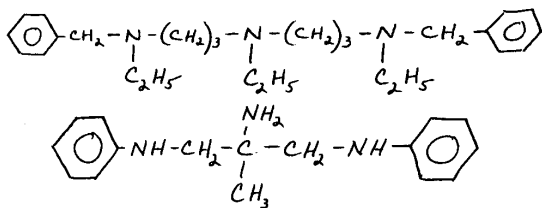
- (1) Note. This subclass contains, for example:



- 366** This subclass is indented under subclass 336. Compounds wherein a halogen is attached directly or indirectly to the acyclic carbon or chain by acyclic nonionic bonding, and there is no amino nitrogen between the halogen and the aryl ring or ring system.

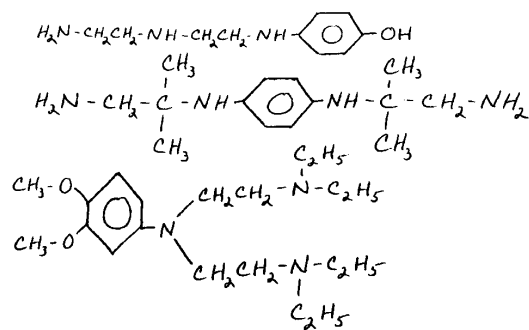
- 367** This subclass is indented under subclass 336. Compounds wherein an additional amino nitrogen is part of the chain between the amino nitrogen and the aryl ring or ring system.

- (1) Note. This subclass contains, for example:



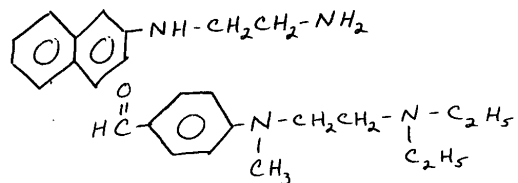
- 368** This subclass is indented under subclass 367. Compounds wherein the chain contains an ethylene diamine group wherein the ethylene carbons may be substituted by alkyl substituents only.

- (1) Note. This subclass contains, for example:



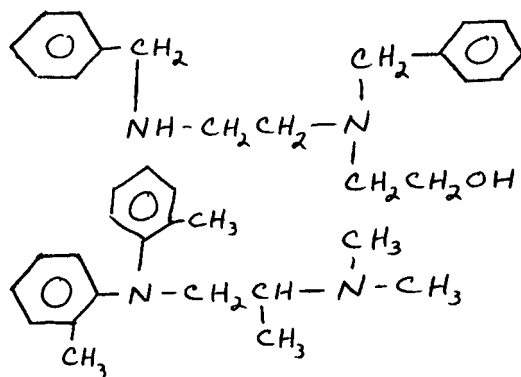
- 369** This subclass is indented under subclass 368. Compounds wherein there is only one ethylene diamine group.

- (1) Note. This subclass contains, for example:



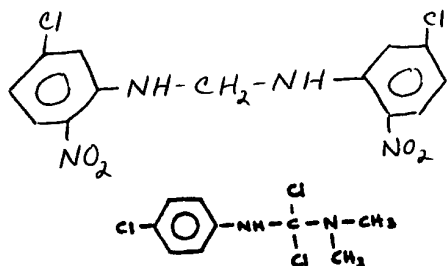
- 370** This subclass is indented under subclass 369. Compounds wherein there are plural discrete benzene ring or ring systems.

- (1) Note. This subclass contains, for example:



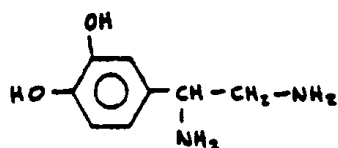
- 371** This subclass is indented under subclass 367. Compounds wherein the chain contains a methylene diamine group.

(1) Note. This subclass contains, for example:



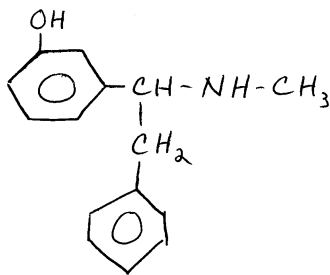
- 372** This subclass is indented under subclass 336. Compounds wherein an additional nonionic amino nitrogen is bonded to the carbon or the chain either directly or as part of an acyclic substituent.

(1) Note. This subclass contains, for example:



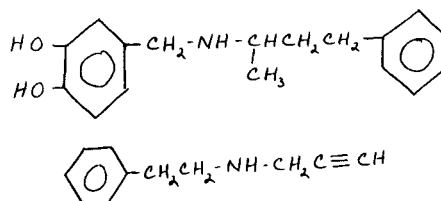
- 373** This subclass is indented under subclass 336. Compounds wherein an aralkyl group is bonded directly to the alpha carbon of a benzyl amine.

(1) Note. This subclass contains, for example:



- 374** This subclass is indented under subclass 336. Compounds wherein the chain consists of two or more carbons which are unsubstituted or substituted by acyclic hydrocarbon groups.

(1) Note. This subclass contains, for example:



- 375** This subclass is indented under subclass 374. Processes wherein the amine group is formed directly by reduction.

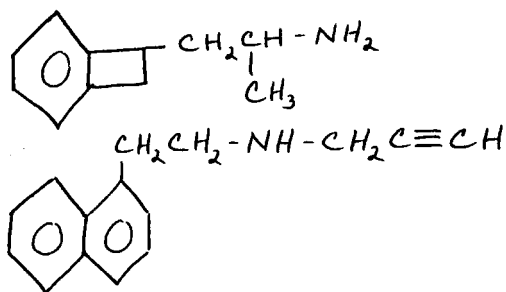
(1) Note. For processes of reductive amination, see the appropriate product subclass.

- 376** This subclass is indented under subclass 374. Processes wherein the compounds are formed by amination by replacing a halogen by an amino nitrogen or ammonia.

- 377** This subclass is indented under subclass 374. Processes wherein the compounds are prepared directly by hydrolysis.

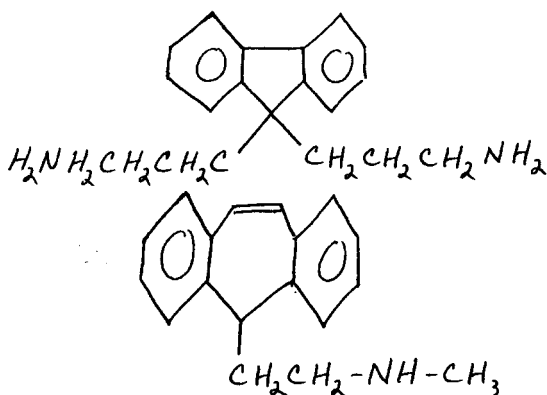
- 378** This subclass is indented under subclass 374. Compounds wherein the aryl ring system is a polycyclic ring system.

(1) Note. This subclass contains, for example:



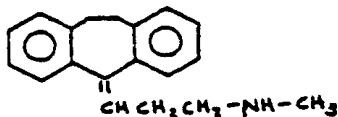
- 379** This subclass is indented under subclass 378. Compounds wherein the polycyclo ring system is tricyclo.

(1) Note. This subclass contains, for example:



- 380** This subclass is indented under subclass 379. Compounds wherein the chain contains a double or triple bond between two carbons.

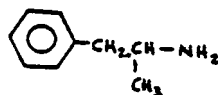
(1) Note. This subclass contains, for example:



- 381** This subclass is indented under subclass 374. Compounds which are phenethylamines, having two carbons in the chain between the amino nitrogen and a benzene ring and an alkyl sub-

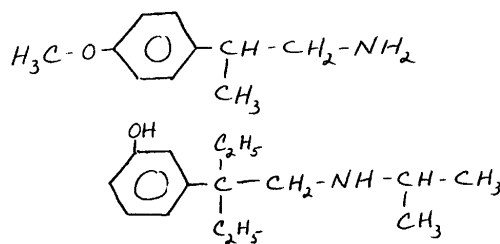
stituent on the carbon alpha to the amino nitrogen.

(1) Note. This subclass contains, for example:



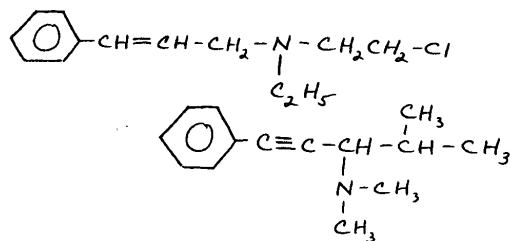
- 382** This subclass is indented under subclass 374. Compounds which are phenethylamines, having two carbons in the chain between the amine nitrogen and a benzene ring and an alkyl substituent on the carbon beta to the amino nitrogen.

(1) Note. This subclass contains, for example:



- 383** This subclass is indented under subclass 374. Compounds wherein the chain contains a double or triple bond between two carbons.

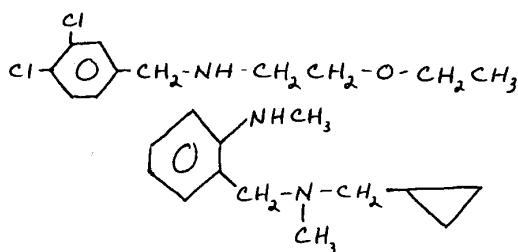
(1) Note. This subclass contains, for example:



- 384** This subclass is indented under subclass 336. Compounds wherein an aryl ring or ring system and an amino nitrogen are both directly

bonded to the same acyclic carbon, which carbon additionally has only hydrogen or acyclic hydrocarbyl substituents bonded directly thereto.

- (1) Note. This subclass contains, for example :



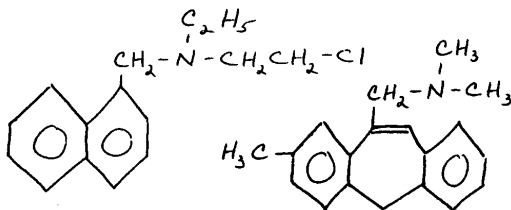
- 385** This subclass is indented under subclass 384. Processes wherein the amine group is formed directly by reduction.

- (1) Note. For processes of reductive amination, see the appropriate product subclass.

- 386** This subclass is indented under subclass 384. Processes wherein the compounds are formed directly by an amination process by replacing a halogen by an amino nitrogen or ammonia or wherein the compounds are formed directly by hydrolysis.

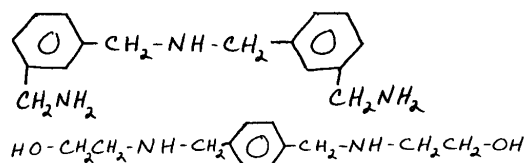
- 387** This subclass is indented under subclass 384. Compounds wherein the aryl ring system is a polycyclic ring system.

- (1) Note. This subclass contains, for example:



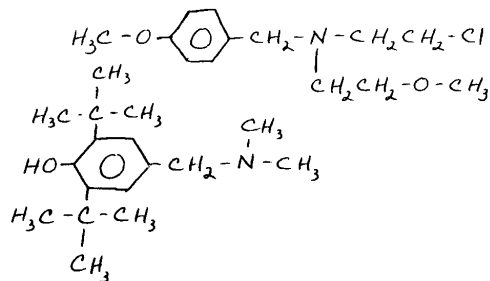
- 388** This subclass is indented under subclass 384. Compounds wherein each of at least two aminomethylene groups are bonded directly to a benzene ring carbon.

- (1) Note. This subclass contains, for example:



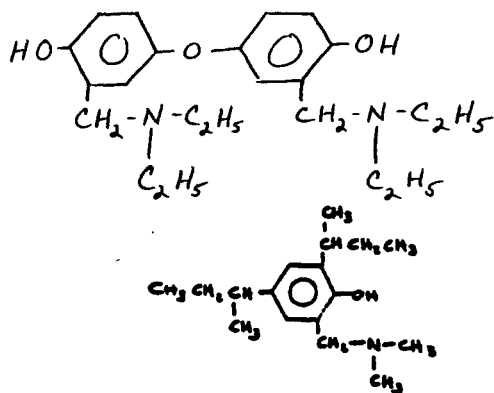
- 389** This subclass is indented under subclass 384. Compounds wherein the aryl ring has an -OX bonded directly to a ring carbon and X is H or C, or a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal.

- (1) Note. This subclass contains, for example:



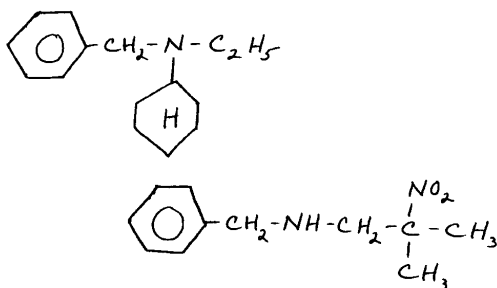
- 390** This subclass is indented under subclass 389. Compounds which are ortho hydroxy benzyamines.

- (1) Note. This subclass contains, for example:



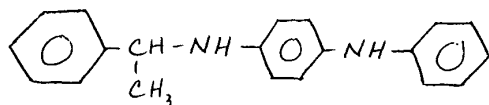
- 391** This subclass is indented under subclass 384. Compounds which are benzylamines where the benzene ring has no other substituent.

(1) Note. This subclass contains, for example:



- 392** This subclass is indented under subclass 391. Compounds wherein an acyclic hydrocarbyl group is bonded directly to the methylene carbon.

(1) Note. This subclass contains, for example:



- 393** This subclass is indented under subclass 305. Processes wherein a benzene containing amino nitrogen compound is prepared directly from an ester.

SEE OR SEARCH THIS CLASS, SUBCLASS:

415, for preparation of an aromatic amine by reduction of a nitrile.

- 394** This subclass is indented under subclass 305. Processes wherein abenzene containing amino nitrogen compound is prepared directly from an organic acid, acid halide, or salt.

- 395** This subclass is indented under subclass 305. Processes wherein a benzene containing amine nitrogen compound is prepared directly by reacting an organic compound with ammonia or an amino nitrogen containing compound replacing a hydrogen thereof or another organic radical bonded to nitrogen to form a carbon to nitrogen bond.

SEE OR SEARCH THIS CLASS, SUBCLASS:

429, and 435, for the formation of a secondary amine by condensation of two primary amines with elimination of ammonia.

- 396** This subclass is indented under subclass 395. Processes wherein an aldehyde or ketone compound is aminated.

- 397** This subclass is indented under subclass 396. Processes wherein an aldehyde or ketone is aminated to form an aldimine or ketimine which is then reduced to an amino nitrogen form.

(1) Note. For the purposes of this classification, this subclass has combined patents which claim the reductive amination in two distinct steps as well as those where the aldimine or ketimine formation and reduction are performed in a single step.

(2) Note. For processes which recite only the reduction of an aldimine or ketimine, see subclass 415.

- 398** This subclass is indented under subclass 397. Processes which utilize a Group VIII noble metal containing catalyst in a reductive amination process.
- 399** This subclass is indented under subclass 395. Processes wherein the compound aminated is an ether or an alkylene oxide.
- 400** This subclass is indented under subclass 395. Processes wherein the compound aminated is a halohydrin.
- 401** This subclass is indented under subclass 395. Processes wherein the compound aminated is an acyclic alcohol.
- 402** This subclass is indented under subclass 395. Processes wherein a hydroxyl is replaced in the amination reaction.
- 403** This subclass is indented under subclass 402. Processes wherein the compound aminated contains two or more hydroxyl groups bonded directly to a benzene ring.
- 404** This subclass is indented under subclass 395. Processes wherein the compound which is aminated contains halogen bonded directly to carbon.
- 405** This subclass is indented under subclass 404. Processes wherein the halogen containing compound contains a benzene ring.
- 406** This subclass is indented under subclass 405. Processes wherein the compound aminated also contains a nitro group bonded directly to carbon.
- 407** This subclass is indented under subclass 405. Processes wherein a primary amine is formed.
- 408** This subclass is indented under subclass 395. Processes wherein the compound aminated is a hydrocarbon.
- 409** This subclass is indented under subclass 305. Processes wherein an alkyl side chain is directly introduced to a ring or directly removed from a ring.
- 410** This subclass is indented under subclass 305. Processes of directly introducing a nitroso group bonded to a carbon.
- 411** This subclass is indented under subclass 305. Processes of directly introducing a nitro group bonded to carbon.
- 412** This subclass is indented under subclass 305. Processes wherein a halogenated benzene containing amino nitrogen compound is prepared directly by halogenating or dehalogenating.
- 413** This subclass is indented under subclass 305. Processes wherein the compounds are prepared directly from a heterocyclic compound.
- 414** This subclass is indented under subclass 305. Processes wherein the compounds are prepared directly from an amide.
- 415** This subclass is indented under subclass 305. Processes wherein an amine group is formed directly by reducing a nitrogen containing group.
- 416** This subclass is indented under subclass 415. Processes wherein the group which is reduced is a nitro or nitroso.
- 417** This subclass is indented under subclass 416. Processes wherein the compound produced by reduction of the nitro or nitroso group contains halogen directly bonded to carbon.
- 418** This subclass is indented under subclass 416. Processes wherein the compound produced by reduction of a nitro or nitroso group contains a hydroxyl bonded to carbon or an ether group.
- 419** This subclass is indented under subclass 416. Processes wherein the compounds are produced by first nitrating and then reducing the nitro group.
- 420** This subclass is indented under subclass 416. Processes wherein the nitro or nitroso group is reduced by addition of hydrogen.
- 421** This subclass is indented under subclass 420. Processes wherein a Group VI metal containing catalyst is utilized in the hydrogenation.

**422** This subclass is indented under subclass 420. Processes wherein a Group VIII metal containing catalyst is utilized in the hydrogenation.

**423** This subclass is indented under subclass 422. Processes wherein a Group VIII noble metal containing catalyst is utilized in the hydrogenation.

**424** This subclass is indented under subclass 305. Processes which are directed to the separation of isomers.

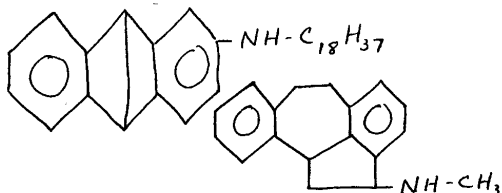
SEE OR SEARCH THIS CLASS, SUBCLASS:

302, and 304, for the separation of optical benzene containing isomers.

**425** This subclass is indented under subclass 424. Processes wherein the separation of the isomers is effected by salt formation.

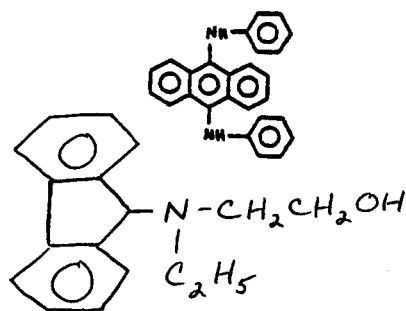
**426** This subclass is indented under subclass 305. Compounds which contains a polycyclo ring system.

(1) Note. This subclass contains, for example:



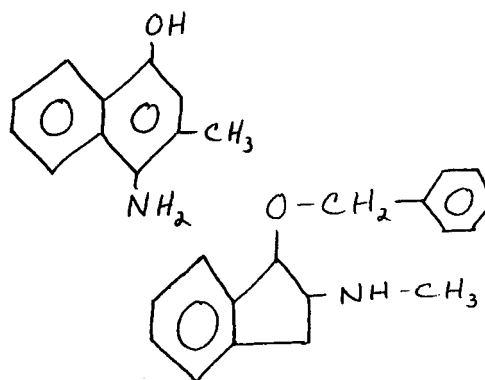
**427** This subclass is indented under subclass 426. Compounds wherein the polycyclo ring system is a tricyclo.

(1) Note. This subclass contains, for example:



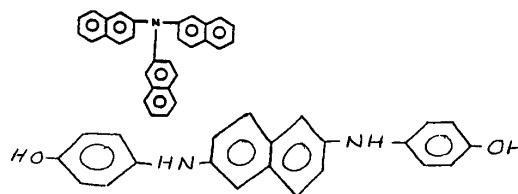
**428** This subclass is indented under subclass 426. Compounds wherein the polycyclo ring system is bicyclo.

(1) Note. This subclass contains, for example:



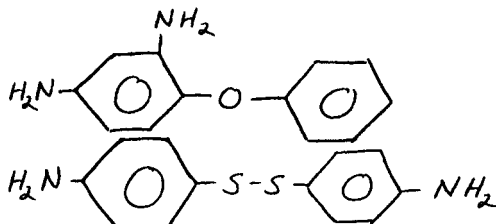
**429** This subclass is indented under subclass 428. Compounds wherein a naphthyl group and a benzene are both bonded directly to the same nitrogen.

(1) Note. This subclass contains, for example:



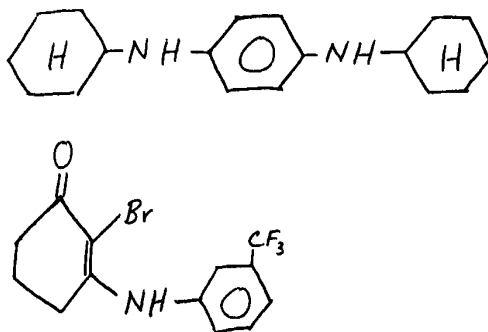
- 430** This subclass is indented under subclass 305. Compounds which are diphenyl ethers or diphenyl sulfides wherein both benzene rings are bonded directly to oxygen, sulfur, or a polysulfide group.

(1) Note. This subclass contains, for example:



- 431** This subclass is indented under subclass 305. Compounds wherein two rings at least one of which is benzene are bonded directly to the same nitrogen.

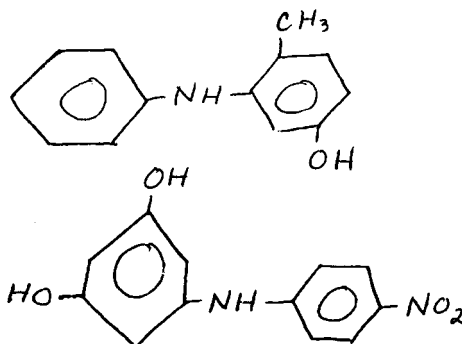
(1) Note. This subclass contains, for example:



- 432** This subclass is indented under subclass 431. Compounds and processes for preparing them wherein an acyclic ketone is condensed with a diarylamine.

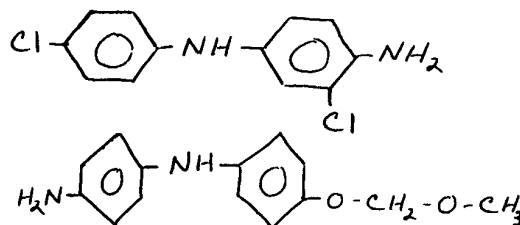
- 433** This subclass is indented under subclass 431. Compounds which are diphenylamines wherein two benzene rings are bonded directly to the same nitrogen.

(1) Note. This subclass contains, for example:



- 434** This subclass is indented under subclass 433. Compounds which contain an additional amino nitrogen.

(1) Note. This subclass contains, for example:



- 435** This subclass is indented under subclass 433. Processes wherein the compounds classified therein are produced by the condensation of a primary amine.

- 437** This subclass is indented under subclass 305. Processes directed to the purification, separation, or recovery of monocyclic amine nitrogen containing compounds.

SEE OR SEARCH THIS CLASS, SUBCLASS:

424+, for the separation of isomers.

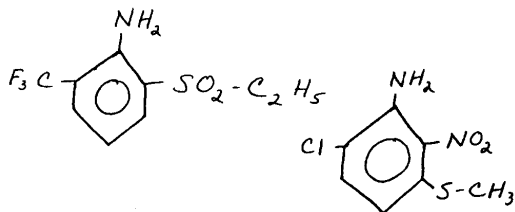
- 438** This subclass is indented under subclass 437. Processes which utilize a salt formation prior to purifying, separating, or recovering.

- 439** This subclass is indented under subclass 437. Processes for the purification, separation or recovery of compounds having an amino group

and a hydroxyl bonded directly to the benzene ring, wherein the H of the -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal (i.e., aminophenols).

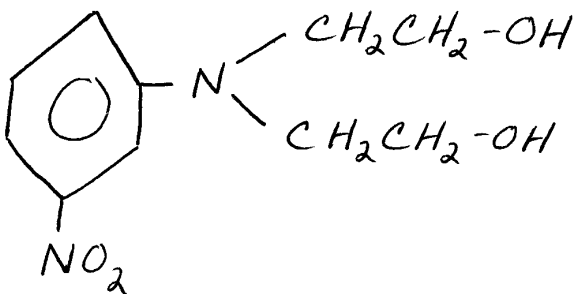
- 440** This subclass is indented under subclass 305. Compounds which contain sulfur nonionically bonded.

(1) Note. This subclass contains, for example:



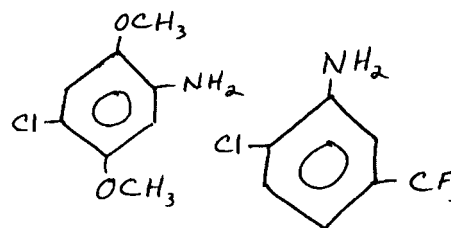
- 441** This subclass is indented under subclass 305. Compounds which contain a nitro or nitroso group bonded directly to carbon.

(1) Note. This subclass contains, for example:



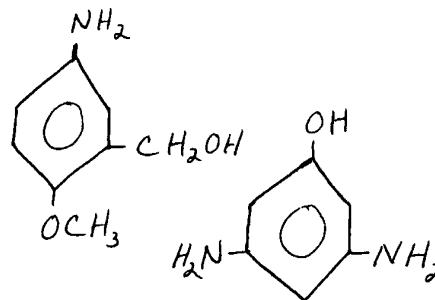
- 442** This subclass is indented under subclass 305. Compounds which contain halogen bonded directly to carbon.

(1) Note. This subclass contains, for example:



- 443** This subclass is indented under subclass 305. Compounds which contain a hydroxyl bonded directly to carbon or an ether group, wherein the H or the -OH may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



- 444** This subclass is indented under subclass 1. Processes wherein an amino nitrogen containing alicyclic compound is prepared directly by isomerization.

- 445** This subclass is indented under subclass 1. Processes wherein amino nitrogen containing alicyclic compounds are produced by reacting an organic compound with ammonia or an amine to replace an unreacted hydrogen or another organic radical bonded to nitrogen to form a carbon to nitrogen bond.

- 446** This subclass is indented under subclass 445. Processes wherein the compound reacted is an aldehyde or ketone.

- 447** This subclass is indented under subclass 445. Processes wherein the compound reacted is one containing a hydroxyl bonded to a noncarbonylic carbon.

**448** This subclass is indented under subclass 1. Processes wherein an amino nitrogen containing alicyclic compound is formed directly by reduction of a nitrogen containing group.

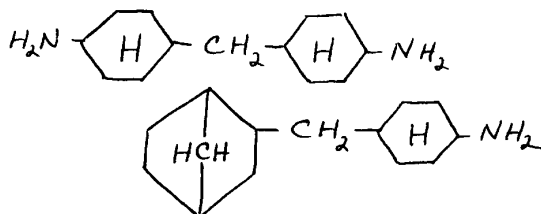
**449** This subclass is indented under subclass 448. Processes which include the hydrogenation of a benzene ring.

**450** This subclass is indented under subclass 1. Processes wherein an amine nitrogen containing alicyclic compound is prepared directly by hydrogenation of a benzene ring.

**451** This subclass is indented under subclass 450. Processes wherein the compound prepared contains more than one amine nitrogen.

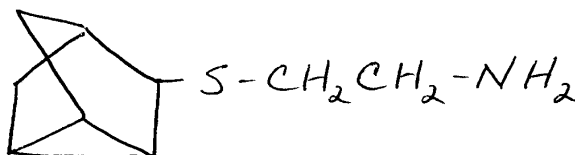
**452** This subclass is indented under subclass 1. Compounds wherein two discrete alicyclic rings or ring systems are bonded directly to the same carbon.

(1) Note. This subclass contains, for example:



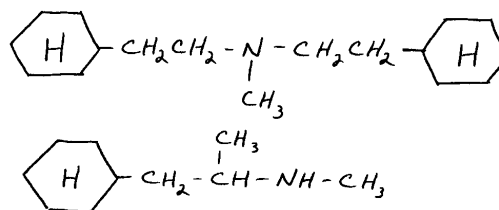
**453** This subclass is indented under subclass 1. Compounds wherein an amino nitrogen is indirectly bonded to an alicyclic ring or ring system through a single acyclic carbon or through an acyclic chain.

(1) Note. This subclass contains, for example:



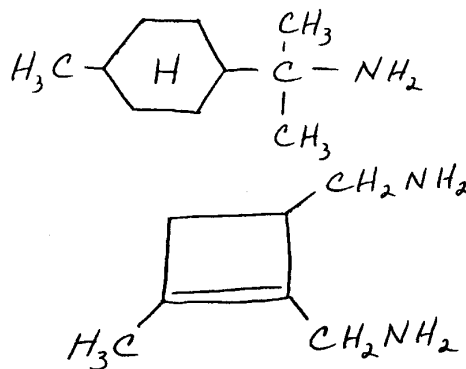
**454** This subclass is indented under subclass 453. Compounds wherein the chain contains at least two carbons and is either unsubstituted or substituted only by acyclic hydrocarbon groups.

(1) Note. This subclass contains, for example:



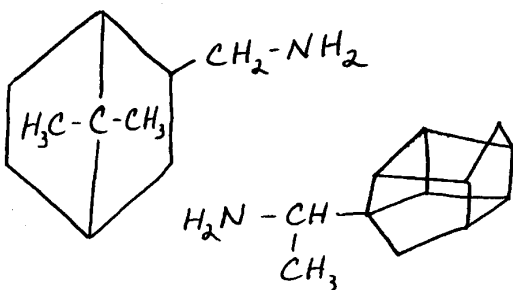
**455** This subclass is indented under subclass 453. Compounds wherein the amino nitrogen is indirectly bonded to the alicyclic ring or ring system through a single acyclic carbon which is unsubstituted or may be substituted by acyclic hydrocarbon groups.

(1) Note. This subclass contains, for example:



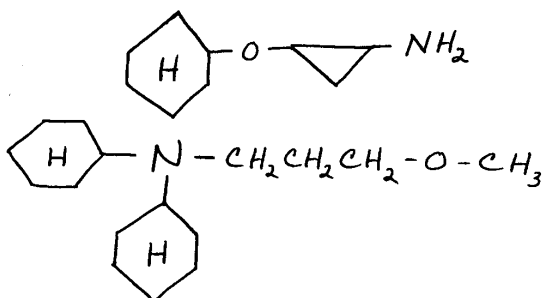
**456** This subclass is indented under subclass 455. Compounds wherein the alicyclic ring system is a polycyclo.

(1) Note. This subclass contains, for example:



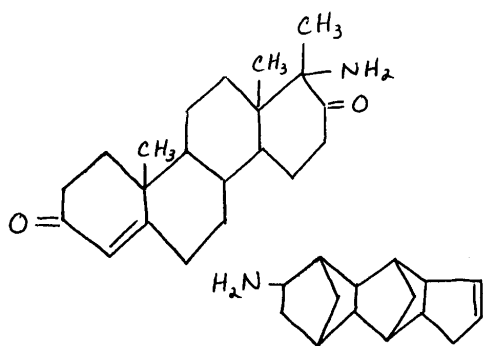
**457** This subclass is indented under subclass 1. Compounds wherein there is more than one alicyclic ring.

(1) Note. This subclass contains, for example:



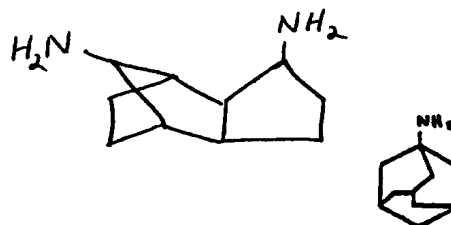
**458** This subclass is indented under subclass 457. Compounds wherein the plural rings are in the form of a polycyclo ring system.

(1) Note. This subclass contains, for example:



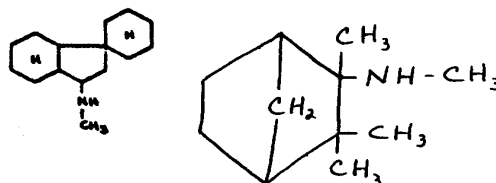
**459** This subclass is indented under subclass 458. Compounds wherein the polycyclo ring system is a tricyclo.

(1) Note. This subclass contains, for example:



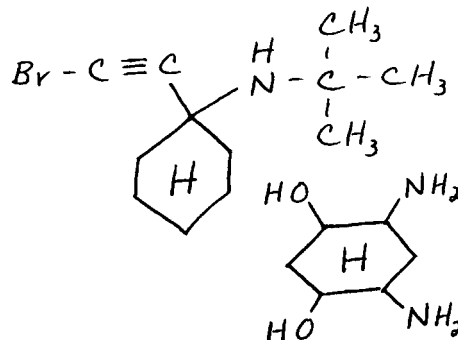
**460** This subclass is indented under subclass 458. Compounds wherein the polycyclo ring system is bicyclo.

(1) Note. This subclass contains, for example:



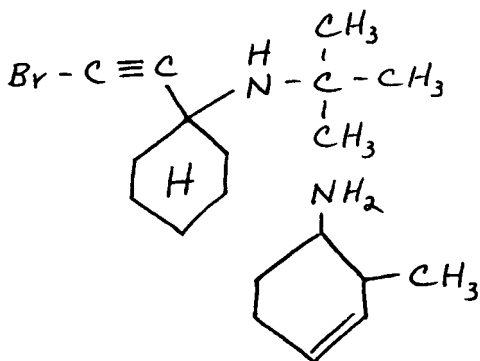
**461** This subclass is indented under subclass 1. Compounds which contain an alicyclic ring and more than one amino nitrogen.

(1) Note. This subclass contains, for example:



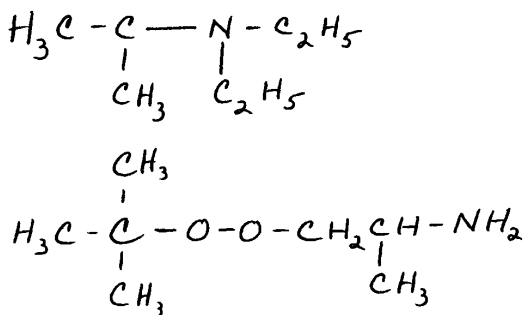
- 462** This subclass is indented under subclass 1. Compounds which contain a cyclohexyl ring.

(1) Note. This subclass contains, for example:

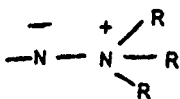


- 463** This subclass is indented under subclass 1. Compounds which contain no ring.

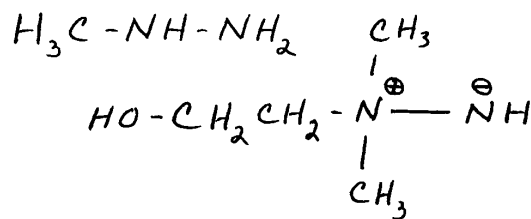
(1) Note. This subclass contains, for example:



- 464** This subclass is indented under subclass 463. Compounds which contain a hydrazine group -NHNH- or its hydrogen substitution products; or aminimines containing the grouping below.



(1) Note. This subclass contains, for example:



- 465** This subclass is indented under subclass 464. Processes wherein the compounds are prepared directly by reducing a nitrosamine.

- 466** This subclass is indented under subclass 464. Processes wherein the compounds are produced by the condensation of a haloamine.

- 467** This subclass is indented under subclass 463. Processes wherein the compounds are prepared by the direct utilization of carbon monoxide.

- 468** This subclass is indented under subclass 463. Processes wherein the compounds are prepared directly from an ester or an organic acid or salt.

SEE OR SEARCH THIS CLASS, SUBCLASS:

490+, for the reduction of a nitrile to form an amino nitrogen compound.

- 469** This subclass is indented under subclass 463. Processes wherein an acyclic amino nitrogen compound is prepared directly by reacting an organic compound with ammonia or an amino nitrogen containing compound replacing an hydrogen thereof or another organic radical bonded to nitrogen to form a carbon to nitrogen bond.

- 470** This subclass is indented under subclass 469. Processes wherein a radical bonded to amino nitrogen by a carbon to nitrogen bond is replaced by a different radical similarly bonded to another amino nitrogen or another radical to form a carbon to nitrogen bond.

- 471** This subclass is indented under subclass 469. Processes wherein the organic compound reacted is an aldehyde or ketone.

- 472** This subclass is indented under subclass 471. Processes wherein the aldehyde or ketone is aminated to form an aldimine or ketimine which is then reduced to an amino nitrogen form.
- (1) Note. This subclass contains patents which claim the reductive amination in two distinct steps as well as those wherein the aldimine or ketimine formation and reduction are performed in a single step.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
489, for processes which recite only the reduction of an aldimine or ketimine.
- 473** This subclass is indented under subclass 472. Processes wherein an aldehyde is subjected to reductive amination.
- 474** This subclass is indented under subclass 469. Processes wherein the organic compound contains an ether group.
- 475** This subclass is indented under subclass 474. Processes wherein the organic compound is an alkylene oxide.
- 476** This subclass is indented under subclass 475. Processes wherein the organic compound is an epihalohydrin.
- 477** This subclass is indented under subclass 475. Processes wherein the compounds produced are monohydroxy alkyl amines (i.e., HO-alkyl)x-N-(H)3-x).
- 478** This subclass is indented under subclass 469. Processes wherein the organic compound contains a hydroxyl bonded to carbon.
- 479** This subclass is indented under subclass 478. Processes wherein a catalyst is utilized.
- 480** This subclass is indented under subclass 479. Processes wherein the catalyst is a Group VI or Group VIII metal containing compound.
- 481** This subclass is indented under subclass 469. Processes wherein the organic compound contains halogen bonded directly to carbon.
- 482** This subclass is indented under subclass 481. Processes wherein the organic compound is an alkylene dihalide.
- 483** This subclass is indented under subclass 481. Processes wherein the organic compound contains a nonionically bonded element other than carbon, hydrogen, or halogen and not provided for above.
- 484** This subclass is indented under subclass 481. Processes wherein the organic compound also contains a double or triple bond between two carbons.
- 485** This subclass is indented under subclass 469. Processes wherein the organic compound contains a double or triple bond between two carbons.
- 486** This subclass is indented under subclass 463. Processes wherein an organic radical bonded directly to an amino nitrogen through carbon is replaced directly by hydrogen.
- 487** This subclass is indented under subclass 463. Processes wherein the compounds are produced directly from a heterocyclic compound.
- 488** This subclass is indented under subclass 463. Processes wherein the compounds are produced directly from an amide such as, for example, a carboxamide or a sulfonamide.
- 489** This subclass is indented under subclass 463. Processes wherein the amine group is formed directly by reduction of a nitrogen containing group.
- 490** This subclass is indented under subclass 489. Processes wherein the group reduced is a cyano group.
- (1) Note. The formation of secondary or tertiary amines by reduction of a nitrile is placed in this subclass.
- 491** This subclass is indented under subclass 490. Processes wherein more than one cyano group is reduced.

**492** This subclass is indented under subclass 491. Processes wherein hexamethylene diamine is produced.

**493** This subclass is indented under subclass 490. Processes wherein a primary mono amine is produced.

**494** This subclass is indented under subclass 489. Processes wherein the nitrogen containing group which is reduced is a nitro or nitroso group.

**495** This subclass is indented under subclass 494. Processes wherein a compound containing a nitro or nitroso group which is reduced also contains a hydroxyl group bonded directly to carbon or an ether group.

**496** This subclass is indented under subclass 463. Processes wherein the acyclic amino nitrogen compounds are produced by introducing halogen to form a direct bond to carbon.

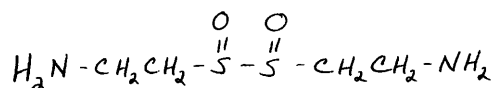
**497** This subclass is indented under subclass 463. Processes directed to the purification, separation, or recovery of acyclic amino nitrogen containing compounds.

**498** This subclass is indented under subclass 497. Processes wherein the compounds prepared are alkylene polyamines.

**499** This subclass is indented under subclass 497. Processes wherein mixtures of primary, secondary, or tertiary amines are separated from each other.

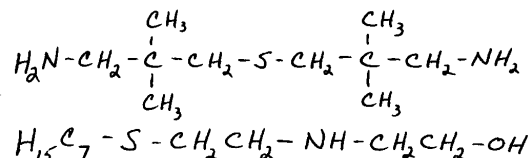
**500** This subclass is indented under subclass 463. Compounds which contain nonionically bonded sulfur.

(1) Note. This subclass contains, for example:



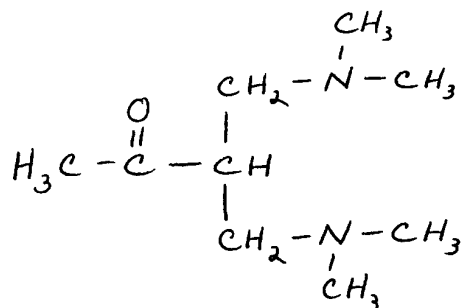
**501** This subclass is indented under subclass 500. Compounds wherein the sulfur is present in the form of a thioether.

(1) Note. This subclass contains, for example:



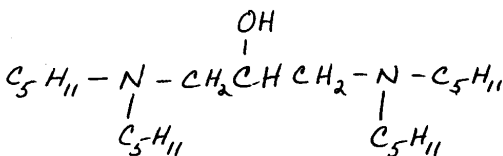
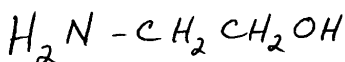
**502** This subclass is indented under subclass 463. Compounds which contain an aldehyde or ketone group.

(1) Note. This subclass contains, for example:



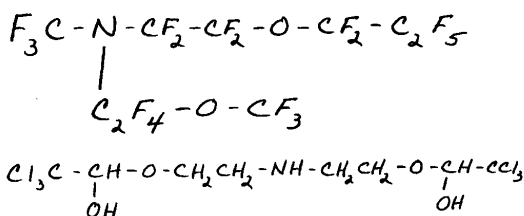
**503** This subclass is indented under subclass 463. Compounds which contain a hydroxyl group bonded directly to carbon, or an ether, wherein the H of the -OH Group may be replaced by a substituted or unsubstituted ammonium ion or by a Group IA or IIA light metal.

(1) Note. This subclass contains, for example:



- 504** This subclass is indented under subclass 503. Compounds which contain more than one ether group.

- (1) Note. This subclass contains, for example:



- 505** This subclass is indented under subclass 504. Compounds which contain the grouping  $-O-(C_nH_{2n}O)_m$  where m and n are positive integers and m is greater than one.

- (1) Note. This subclass contains, for example:  $H_{37}C_{18} - O - (CH_2CH_2O)_{19} - CH_2CH_2CH_3$

- 506** This subclass is indented under subclass 503. Compounds which contain more than one hydroxyl bonded to carbon.

- (1) Note. This subclass contains, for example:  $H_{37}C_{18} - OH - HO - CH_2CH_2 - NH - CH_2CH_2CH_2 - NH - CH_2CH_2 - OH$

- 507** This subclass is indented under subclass 506. Compounds which contain more than one hydroxyl bonded to carbon on the same amino nitrogen substituent.

- (1) Note. This subclass contains, for example:  $HO - CH_2 - (CHOH)_3 - OH - CH_2CH_2 - OH$

- 508** This subclass is indented under subclass 503. Compounds which contain only one ether group.

- (1) Note. This subclass contains, for example:  $CH_3 - CH_2 - O - CH_2 - CH_2 - CH_3$

- 509** This subclass is indented under subclass 463. Compounds which contain a double or triple bond between two carbons.

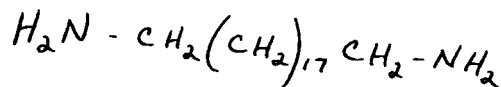
- (1) Note. This subclass contains, for example:  $H_2C = CHCH_2CH_3$

- 510** This subclass is indented under subclass 463. Compounds which contain halogen bonded directly to carbon.

- (1) Note. This subclass contains, for example:  $Br(CH_2)_3 - NHCH_3$   $H_2N - CH_2 - (CF_2)_3 - CH_2 - NH_2$

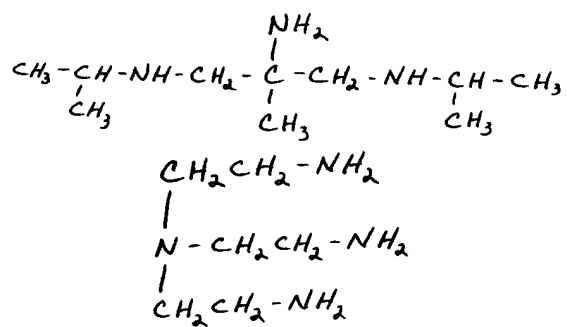
- 511** This subclass is indented under subclass 463. Compounds which contain more than one amino nitrogen.

- (1) Note. This subclass contains, for example:  $H_{31}C_{15}CH_2CH_2CH_3$



- 512** This subclass is indented under subclass 511. Compounds which contain three or more amino nitrogens.

- (1) Note. This subclass contains, for example:



END